Musician's Manual

EPS

Performance Sampler

READ THIS FIRST!

WARNING!!

Grounding Instructions

This product must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER: Improper connection of the equipment-grounding conductor can result in the risk of electric shock. Check with a qualified electrician or service personnel if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with this product — if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

CAUTION

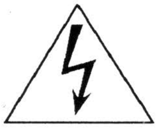
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION : TO REDUCE THE DANGER OF ELECTRIC SHOCK

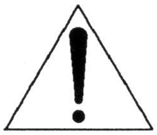
DO NOT REMOVE COVER (OR BACK)

NO USER SERVICEABLE PARTS INSIDE

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electronic shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

SEE IMPORTANT SAFETY INSTRUCTIONS ON BACK COVER!

ensoniq®

EPS

Performance Sampler

Musician's Manual
Version 1.1

EPS Musician's Manual:

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and Illustrated by: Bill McCutcheon

Cover Design by: Gilligan Designs, Inc.

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155 Great Valley Parkway
Malvern, PA 19355

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If you have any questions concerning the use of this unit, please contact your authorized **ENSONIQ** dealer. For additional technical support, or to find the name of the nearest authorized **ENSONIQ** Repair Station, call **ENSONIQ** Customer Service at (215) 647-3930.

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Although every effort has been made to ensure the accuracy of the text and illustrations in this Manual, no guarantee is made or implied in this regard.

IMPORTANT:

"This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been designed to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures."

* reorient the receiving antenna
* relocate the instrument with respect to the receiver
* move the instrument away from the receiver
* plug the instrument into a different outlet so that the instrument and receiver are on different branch circuits

"If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: 'How to Identify and Resolve Radio-TV Interference Problems.' This booklet is available from the U.S. Government printing Office, Washington, D.C. 20402 Stock No. 004-000-00345-4."

In order to fulfill warranty requirements the EPS should be serviced only by an authorized ENSONIQ Repair Station.

The ENSONIQ serial number label must appear on the outside of the Unit or the ENSONIQ warranty is void.

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Part # 9310002701-B Model # MM-20

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INTRODUCTION

Welcome to the ENSONIQ EPS Performance Sampler, the instrument that redefines what a digital sampling keyboard can be. While conceiving and designing the EPS, ENSONIQ set out to overcome the limitations of ordinary sampling keyboards — down-time while sounds load from disk, not enough sounds available at once, limited expressiveness, and so on. The EPS provides the solutions to these and many other problems.

The EPS can have up to eight different Instruments loaded into its memory at once. What's more, it's the first sampler that lets you continue to play the sounds already in memory *while* other ones are being loaded. And of course it sounds great — with twice the resolution of a 12-bit sampler, the EPS can reproduce any sound with stunning accuracy. There is more to making music, however, than just playing back samples, so we sought new ways to *control* and *modulate* sampled sounds in performance — to approach the kind of expression usually associated only with acoustic instruments.

Here are just three of the things we developed that make the EPS truly a Performance Sampler:

- **Performance Loading.** No more standing around waiting for a sound to load. While the EPS loads an Instrument from a disk you can go right on playing the ones already in memory.
- **Poly-Key™ Pressure-sensitive keyboard.** You're probably familiar with Pressure (or Aftertouch) which lets you bring in vibrato or some other modulation effect by pressing down harder on a key. The problem with ordinary Channel Pressure is that when you press down on any key, it affects *every* note that's playing. The EPS's Poly-Key Pressure offers a new level of expressiveness by affecting each note independently.
- **Patch Select Buttons.** The two little buttons above the Pitch and Mod wheels, called Patch Select buttons, are another ENSONIQ innovation aimed at getting maximum expressiveness out of a keyboard controller. Holding down either or both of these buttons allows instant access to alternate sounds within an Instrument. Sampled sounds need no longer be one-dimensional.

Of course this only scratches the surface. The list goes on — things like an integrated multi-track MIDI sequencer packed with sophisticated features, "Expert-System" Autolooping, six different crossfade looping algorithms, dynamic digital filters, true 20-voice multi-timbral operation, optional SCSI port, and much more. Not to mention an "open" voice architecture which allows EPS Instruments to be configured in ways that are limited only by the imagination of the programmer.

But you will discover all this in good time. Right now you probably want to make some music. So plug in the EPS and explore its potential. Most of all, enjoy.

ABOUT THE MUSICIAN'S MANUAL

Though it looks and acts like a keyboard instrument, the EPS is actually a sophisticated computing device, with more processing power than the average personal computer. Like all ENSONIQ products it has been designed for ease of use by those who just want to make music, and yet it offers a wealth of advanced functions for the more technically inclined. Because not all musicians are (or want to be) computer wizards, we have divided the EPS operating instructions into two volumes.

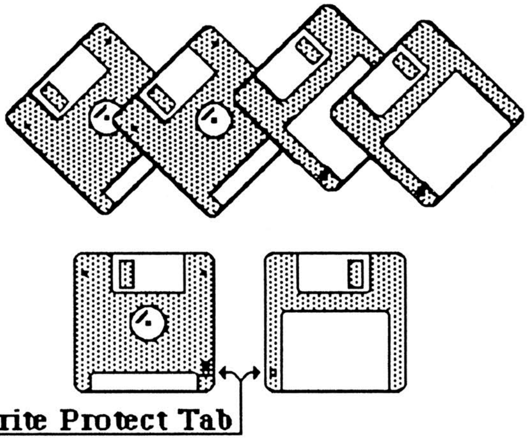
The book you are reading, the *EPS Musician's Manual*, is designed to introduce you to all the essential functions of the EPS. It contains everything you'll need to know to start making music with the EPS, presented in a straightforward way. We suggest you read it carefully to ensure that you get the most out of your EPS.

A second volume, the *EPS Advanced Applications Guide* (AAG), explores the inner workings of the EPS in greater depth. In the Advanced Applications Guide you will find detailed discussions of the EPS's advanced data manipulation, digital signal processing, MIDI and Sequencer features. Also you will learn how to program the EPS's many Wavesample, Layer and Instrument parameters to create your own custom Instruments. Those who like to dig around beneath the surface will find the necessary information in the AAG.

CARE AND FEEDING OF THE DISK DRIVE

The EPS's built-in Disk Drive is used to store all your Instruments and Sequencer data, as well as System Exclusive messages from other MIDI devices. The EPS uses a double-sided drive, which can store 800 Kilobytes of data per disk. You should always use **Double-Sided Double-Density (DSDD) 3.5" micro-floppy disks** for reliable disk operation. The disks are enclosed in a protective plastic carrier with an automatic shutter to protect the diskette from physical damage. It is important not to alter this carrier in any way.

The 3.5" disks have a sliding write-protection tab so that you can protect your sounds and sequences against accidental erasure. Sliding the write-protection tab in the lower left corner of the disk so that the window is closed will allow you to store information on the disk. Sliding the tab so that the window is open will protect the disk against being accidentally reformatted or having files deleted.



Floppy disks are a magnetic storage medium, and should be treated with the same care you'd give important audio tapes. Here are a few Do's and Don'ts concerning disks and the Disk Drive.

Do:

- Use only Double-Sided Double-Density (DSDD) 3.5 inch Micro-floppy disks. These are available from almost any computer store, and many music stores carry them as well.
- Keep your disks and the Disk Drive clean and free of dust, dirt, liquids, etc.
- Label your disks, and keep a record of what is saved on each.

Don't:

- Use Single-Sided (SSDD or SSSD) disks. These disks have not passed testing on both sides. While a single-sided disk might work successfully with the EPS, it is possible that you will eventually lose important data to a disk error if you try using Single-Sided disks.
- Put anything other than a disk in the Disk Drive.
- Expose disks to extremes of temperature. Temperatures below 50° F and above 140° F can damage the plastic outer shell.
- Subject disks to strong magnetic fields. Exposure to magnetic energy can permanently damage the information on the disk. Keep disks away from speaker cabinets, tape decks, power cables, airline x-ray equipment, power amplifiers, TV sets, and any other sources of magnetic energy.
- Eject the disk while the drive is operating (the Disk Drive light is on).

DISK MEMORY vs. INTERNAL MEMORY

The Instruments and Sequences which the EPS plays are stored on double-sided 3.5" micro-floppy disks. Each disk will hold 800k *bytes* of data, which translates into 400k *Sample-words*, or about 1600 *Blocks*. (A Block is a handy unit which the EPS uses to measure Internal and Disk memory — 1 Block=256 samples; 4 Blocks=1k samples.)

Sounds and sequences must be loaded into the Internal Memory of the EPS from the disk before they can be played. Once it's loaded into memory, an EPS sound or sequence is completely independent of the copy on the disk — you can do anything you want to it without harming the version on the disk, unless you intentionally Save the changes. You should feel free to experiment as much as you like with the Instrument, Layer and Wavesample parameters of any sound that came with the EPS. As long as you have it safely on the disk you can just reload it and start over if your experiments go awry.

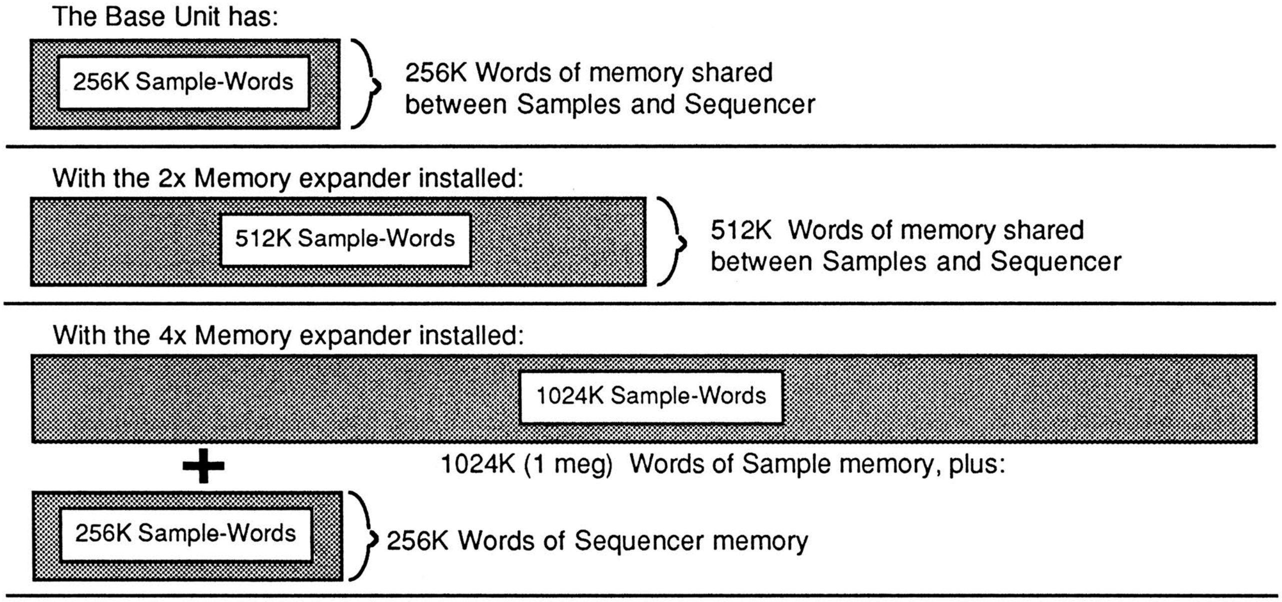
IMPORTANT: The data in the EPS's Internal Memory is *not* retained when the power is turned off. Anything in memory, whether Instruments or Sequences, *must* be saved to disk before you switch the power off or it will be gone forever.

INTERNAL MEMORY AND MEMORY EXPANSION

As it comes out of the box the EPS contains 256K Sample-Words (1024 blocks) of Internal memory. That's enough for 8.6 seconds of sampling at a 30 KHz sample rate, or about 80,000 notes of Sequencer memory.

This Internal memory is shared by samples and the Sequencer. The memory is distributed *dynamically* between Instruments and Sequences, which means that the more Sounds you have in memory, the less Sequences you can have, and vice-versa. There are two memory expansions available in the form of cartridges which plug into the rear of the unit:

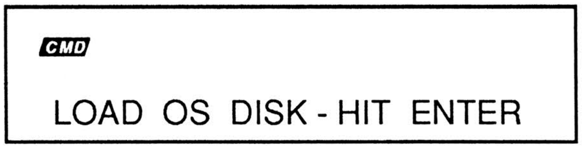
- The 2x Expander doubles the Internal memory, giving you 512K Sample-Words (2048 Blocks) of memory which, again, is shared by samples and sequences.
- The 4x Expander adds one entire mega-Word (4096 Blocks) of dedicated Sample memory. The original 256K Words becomes dedicated Sequencer memory.


The Base Unit has:
256K Sample-Words
256K Words of memory shared between Samples and Sequencer
With the 2x Memory expander installed:
512K Sample-Words
512K Words of memory shared between Samples and Sequencer
With the 4x Memory expander installed:
1024K Sample-Words
+
1024K (1 meg) Words of Sample memory, plus:
256K Sample-Words
256K Words of Sequencer memory

With the 4x Expander you can also install the optional SCSI (Small Computer System Interface) port which allows the EPS to save data to a SCSI-compatible hard disk or to exchange information with computers at very high speed.

SOMETIMES THE EPS ASKS FOR THE OPERATING SYSTEM DISK

Occasionally, when sequencing, sampling or performing certain other advanced EPS functions, you will be confronted with the following message:

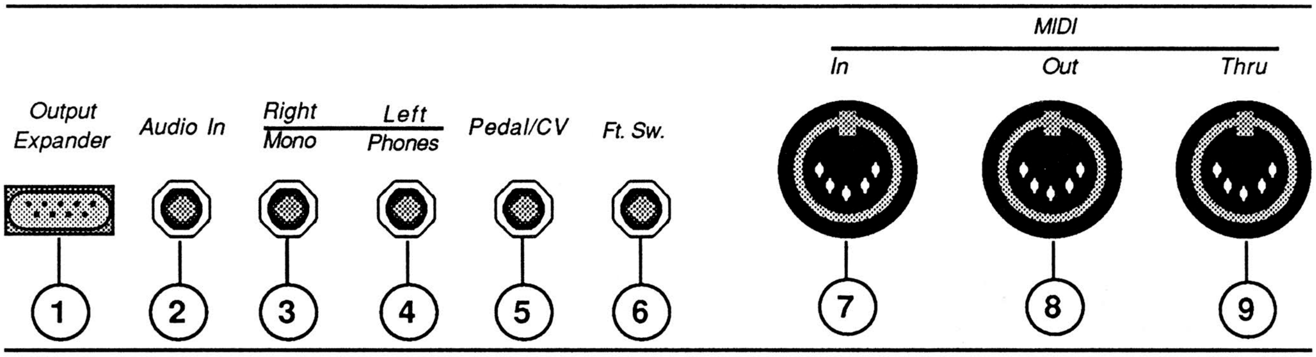


LOAD OS DISK - HIT ENTER

When you see this message, it means that in order to complete the current command or edit function the EPS needs to load a portion of the Operating System from Disk.

If the disk in the Drive does not have the EPS Operating System on it, or if there is no disk in the Drive you will see this message. Insert a disk containing the Operating System into the Drive and press *Enter*, and you will be able to carry on with the function at hand.

REAR PANEL CONNECTIONS



1) Output Expander

This is for connecting the optional OEX-8 Output Expander box, which gives the EPS eight true solo outputs *in addition* to the built-in stereo outputs. Each Wavesample, or an entire Instrument/Track, can be assigned to any of the eight outputs or to a spot within the stereo mix.

2) Audio In

This jack is the audio input used for sampling into the EPS. You can switch between mic or line level by pressing the Left or Right Arrow button after entering Level-Detect (VU) mode when sampling.

Specs: 50 KOhm input impedance, AC coupled. Maximum input signal before clipping: Line level= 1 Vp-p; Mic level= 50 mVp-p.

AUDIO OUTPUTS:

3) Right/Mono

To operate the EPS in Mono, use this jack only. To operate the EPS in Stereo, connect this Output to a channel of your Mixer and pan that channel Right. If nothing is connected to this jack, both channels of the EPS's output will be sent in stereo to the Left/Phones Output for use with headphones.

Specs (16-voice mode): In Left&Right mode: 680 Ohm output impedance, DC coupled. In Mono (summed) mode: 340 Ohm output impedance, DC coupled. Line level output into 10 KOhms or higher (one voice=1 Vp-p typical; all voices= 16 Vp-p).

4) Left/Phones

When operating the EPS in Stereo, connect this Output to a channel of your Mixer and pan that channel Left. To listen to the EPS in stereo through headphones, plug the phones into this jack (make sure nothing is plugged into the Right/Mono jack, or the headphone output will not work properly). When nothing is connected to this jack, both channels of the EPS's output will be summed together and sent in mono to the Right/Mono Output.

Specs: In Left&Right mode: 56 Ohm output impedance, DC coupled. In Headphones mode: 56 Ohm output impedance, each side, DC coupled. Line level output into 10 KOhms or higher (one voice=1 Vp-p typical; all voices= 16 Vp-p).

5) Pedal/CV

This jack is for connecting an optional ENSONIQ Model CVP-1 Control Voltage Foot Pedal, which is assignable as a Modulator to various Wavesample parameters within the EPS. The Pedal gives you a handy alternative Modulation source when, for example, you would want to use the Mod Wheel but both hands are busy.

REAR PANEL CONNECTIONS (cont'd.)

The CV Pedal can also be assigned to act as a volume pedal. There is a parameter on the EDIT/System Page (press *Edit*, then *System*, then the Right or Left arrow button until you find the parameter PEDAL= MOD/VOL) which determines whether the Pedal will act as a modulator or as a volume pedal. Set to PEDAL=VOL to use the CV Pedal to control the Volume of the EPS.

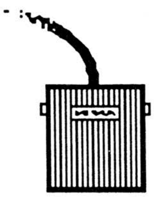
Pedal/CV Specs: 3-conductor (Tip=control voltage input, Ring=3 KOhm resistor to -12 Volts, Sleeve= ground). 47 KOhm input impedance, DC coupled. Input voltage range=0 to -9 volts DC. Scan rate=20mS (maximum recommended modulation input= 20 Hz). For use with an external control voltage, use a 2-conductor cable with the voltage on the tip and the sleeve grounded.

6) Foot Switch Input

This jack supports either one or two Footswitches depending on what is plugged into it:

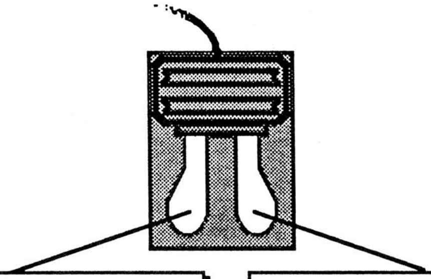
- If you plug the ENSONIQ Model SW-1 Foot Switch (which came with your EPS) into this jack, it will act as a sustain pedal. Holding it down will cause notes to continue to sustain after the key has been released.
- Or you can connect the optional ENSONIQ Model SW-5 Foot Switch here. The SW-5 is a dual (piano-type) foot switch with two separate pedals. When the SW-5 is connected, the right-hand pedal will act as a sustain pedal and the left-hand pedal will act as an Auxiliary Foot Switch. The Auxiliary Foot Switch can be used to start and stop the Sequencer.

When the SW-1 is connected
to the FootSwitch jack:



It acts as the Sustain Foot Switch.

When the SW-5 is connected to
the FootSwitch jack:



The left pedal acts as the Aux. Foot Switch.

The right pedal acts as the Sustain Foot Switch.

Also there are two parameters on the EDIT/System Page (press *Edit*, then *System*, then the Left or Right Arrow button until the parameter is showing) which let you assign either switch to reproduce the actions of the Patch Select buttons. By setting either or both of these parameters to Patch Select you can select alternate sounds within an Instrument without taking your hands off the keyboard.

7) MIDI Out

This jack sends out MIDI (Musical Instrument Digital Interface) information to other instruments and computers.

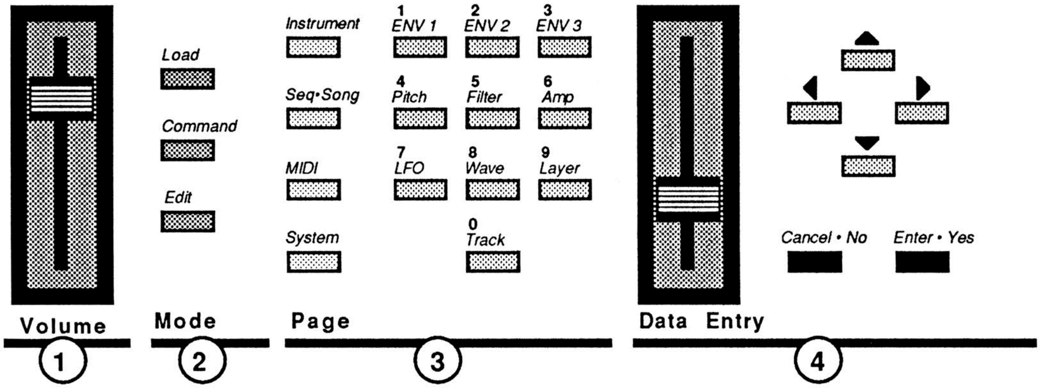
8) MIDI In

Receives out MIDI information from other MIDI instruments or computers.

9) MIDI Thru

"Passes on" all MIDI information received by EPS to other devices. Information generated by the EPS itself does not go to this jack — the Thru jack merely echoes what comes in at the MIDI In jack.

FRONT PANEL CONTROLS



1) Volume Slider

This controls the overall volume of the EPS's audio outputs.

2) Mode Buttons

These three buttons are the key to finding your way around the EPS. The EPS is *always* in one of these three *Modes* — LOAD, COMMAND or EDIT. The current mode is selected by pressing the appropriate Mode button. The highlighted word in the upper left corner of the Display tells you which is the current mode.

- LOAD Mode is the one you will be in most often — since the EPS lets you continue playing while loading sounds and sequences, LOAD Mode also doubles as the "Performance" mode.
- COMMAND Mode is used to execute a wide variety of commands, such as: saving Instruments, Banks and Sequences to disk; copying Instruments, Layers and Wavesamples from one internal location to another; creating and modifying Sequences and Songs; and manipulating wavesamples and their loops in various ways... just to name a few.
- EDIT Mode is used to select and modify a great many variables — or parameters —ranging from the volume of a Wavesample, to the velocity response of the instrument, to the MIDI In mode. EDIT Mode is also the mode in which all Sequence recording and mixing is done.

3) Page Buttons

Within each Mode, the available disk files, commands and parameters are organized into *Pages*. A Page is selected by pressing one of these 14 Page buttons. Once you are on the right Page, you use the Data Entry controls to scroll through the files, commands or parameters on the Page. A given Page will have different functions depending on the current Mode. Each Mode has a different set of Pages available. Not all 14 Page buttons are active in all three Modes.

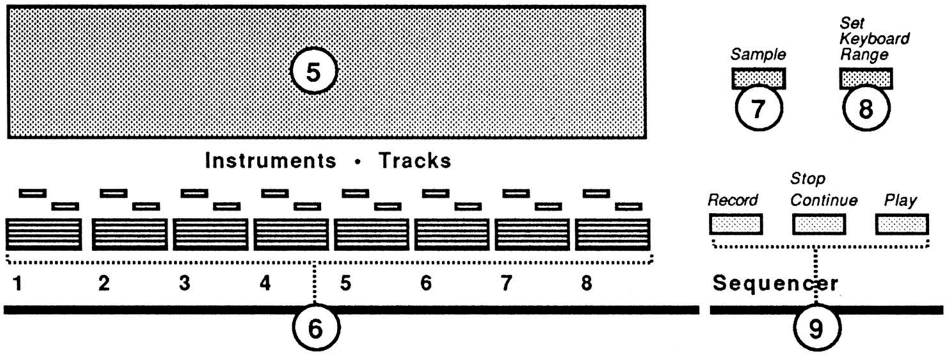
The ten *numbered* Page buttons also double as a numeric keypad for "direct-dialing" a given disk file, command or parameter or for sending MIDI Program Changes.

4) Data Entry Controls

Once you are in the desired Mode and have selected the proper Page, you use the controls in the Data Entry section to: locate and load the desired file (in LOAD mode); locate and execute the desired command (in COMMAND Mode); or locate and modify the value of the desired parameter (in EDIT Mode).

- The Data Entry Slider and the Up and Down Arrow buttons will: move through the files on the current disk or directory (in LOAD Mode); change the value of the current parameter (in EDIT Mode); or respond when the EPS asks you for further input during the execution of a command on COMMAND Mode.
- The Left and Right Arrow Buttons are used primarily to move to the next parameter or command on the current Page.
- The *Enter•Yes* and *Cancel•No* Buttons are used to either proceed with or cancel the function currently showing on the Display.

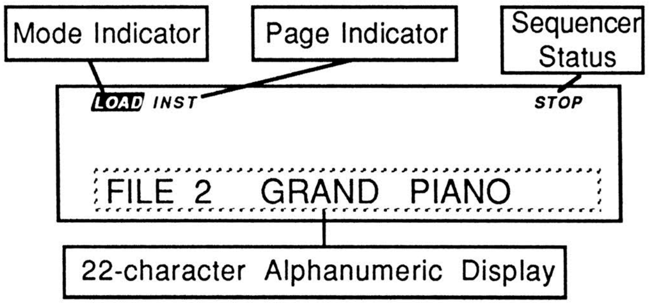
FRONT PANEL CONTROLS (cont'd.)



5) Display

The EPS Display is divided into two main sections: the *Indicator Lights* in the top half of the window, and the *22-character alphanumeric display* at the bottom of the window.

- The Indicator Lights tell you: which Mode the EPS is in (LOAD, COMMAND or EDIT); which Page it is on; and the Sequencer status (STOP, PLAY, RECORD, etc.).
- The 22 character alphanumeric display is used to show you information about specific files, parameters, commands, etc. It will also ask you for additional input when necessary, such as which slot you want to Load an Instrument into, or which Wavesample you want to edit.



6) Instrument•Track Buttons

These eight buttons are used to select, deselect, and "stack" the various Instruments loaded into the Internal Memory of the EPS. For each of the eight locations, the two LED's above the button indicate whether an Instrument is *Loaded* into that location (red LED lit) and whether it is *Selected* (yellow LED lit). See "Playing Instruments," p. 12 for a full discussion of the Instrument•Track buttons.

Each Instrument location is also Sequencer Track — that is, whatever is recorded on Track 1 of a Sequence will play the Instrument that is loaded into location #1. When you are recording, editing or mixing Sequences and Songs, you use these buttons to select the current Track.

7) Sample

This button is used to initiate sampling (digitally recording sounds) by the EPS. See "Sampling," p. 23, for more on sampling.

8) Set Keyboard Range

Pressing this button puts you on a special Command Page which lets you change the keyboard range of an Instrument and transpose its pitch. For example, you can easily move an Instrument from the lower half of the keyboard to the upper half. The procedure for doing this is covered in "Changing the Range of an Instrument," p. 16. Also, when an individual Wavesample is selected (in EDIT Mode) the *Set Keyboard Range* function is used to adjust the range of that Wavesample.

9) Sequencer "Transport Controls"

These three buttons are used to control the EPS's built-in multi-track Sequencer. See "Using the Sequencer," p. 33, for details.

HOOK IT UP

POWER

Insert the Power Cable into the receptacle on the back of the EPS, next to the On/Off switch. Plug the other end of the cable into a grounded AC outlet. (The proper voltage for your EPS is listed on the Serial Number Label on the Rear Panel.) Turn on the EPS. All the red and yellow LED's below the Display should light. If not, check your connections and power source.

AC LINE CONDITIONING

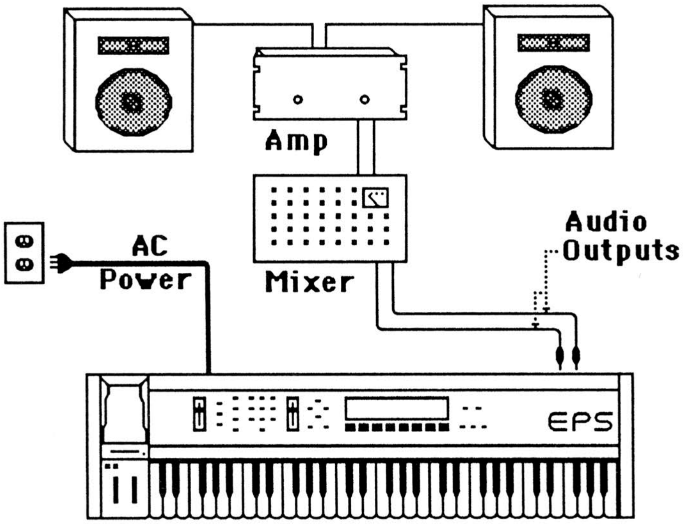
As is the case with any computer device, the EPS is sensitive to abnormal peaks and drops in the AC line voltage. Lightning strikes, power drops or sudden and erratic surges in the AC line voltage can scramble the internal memory and, in some cases, damage the unit's hardware. How can you protect yourself against such occurrences? There are a couple of options:

- A Surge/Spike Suppressor. The cheaper of the options, a surge/spike suppressor absorbs, and protects your gear from all but the most severe over-voltage conditions. You can get multi-outlet power strips with built-in surge/spike suppressors for little more than the cost of unprotected power strips, so using one is a good investment for all your electronic equipment.
- A Line Conditioner. This is the best, but by far the more expensive, way to protect your gear. In addition to protecting against surges and spikes, a line conditioner guards the equipment against excessively high or low line voltages. If you use the EPS in lots of different locations with varying or unknown AC line conditions, you might consider investing in a line conditioner.

CONNECTIONS

Make sure your Audio system is turned off (or down) when making connections, to avoid damaging speakers or other components.

Connect the Audio Outputs of the EPS to a mixer, instrument amplifier, stereo, or any other sound system, using 1/4 inch audio cables. If your system is stereo, connect the Left and Right Outputs to two channels of your mixer, stereo, etc. If not, use the EPS's Right/Mono Output only. For listening through headphones, disconnect the Right/Mono jack and connect the phones to the Left/Phones jack.



If you're running the EPS through a mixer in stereo, as shown above, be sure to pan the Left input fully left, and the Right input fully right.

TURN IT ON — "Booting" the EPS

The EPS Operating System — the computer program which tells the hardware what to do — is "disk-based." This means that each time you turn the EPS on, the first disk you insert must be one containing an EPS Operating System (at the bottom of the disk label it will say "EPSOS ver. xx"). The EPS will load the Operating System (or O.S.) into its memory and then be ready for normal operation. In computer-speak, this is called "booting" the machine. You should always use the latest (highest-numbered) Operating System.

• Turn the Power switch On.

All the red and yellow LED's above the Instrument•Track buttons will light and the Display will read "ENSONIQ EPS." If there is no disk in the drive the Display will say "PLEASE INSERT DISK."

• Insert a disk with an EPS Operating System into the drive.

Insert the disk with the label facing up and the sliding metal door facing away from you. The Display will read "LOADING SYSTEM" while the O.S. is being loaded. Once the O.S. is loaded the EPS will put itself into LOAD mode — "LOAD" flashing, and the Display showing the Bank or Instrument files (if any) which are on the disk.

If the first disk you put in the drive doesn't contain the EPS Operating System — the Display will flash "O.S. NOT ON DISK" or "DISK NOT FORMATTED." Just remove that disk and insert a proper EPS O.S. disk.

• Don't touch the keyboard while it's calibrating.

Right after the EPS is finished loading the Operating System, and before it puts itself into LOAD Mode, it will calibrate its keyboard. During calibration the software scans each key and optimizes its Velocity and Pressure response. The Display will briefly read "TUNING KBD - HANDS OFF." It is important that you don't play or hold down any keys during this time.

• Load an Instrument or Bank into the Internal Memory.

Once it has "booted" the EPS is ready to operate, but it won't make any sound until you LOAD an Instrument into its Internal memory and then SELECT that Instrument by pressing its Instrument button. See the following sections, "Loading an Instrument," and "Playing Instruments."

Note: If there is a BANK file on the Boot-up disk — the Display will automatically show that Bank File after loading the O.S. (A Bank is a way to load a whole group of Instruments and/or Sequences at once. More about Bank Files on p. 11.) Just press *Enter* twice to load the entire Bank.

ABOUT INSTRUMENTS

We refer to EPS sounds as *Instruments*. A grand piano, an electric bass, a multi-sampled drum set, a complete string section — each of these would be an example of an Instrument. You can load up to eight Instruments into the EPS, memory permitting, and have instant access to any or all of them.

Each Instrument contains four different *Patches* which are selected with the *Patch Select* buttons. These Patches allow a single Instrument to have four different inflections, voicings, tunings, or synth-type program variations all available at the press of a button.

An Instrument can be any size (within the limits of memory) — one Instrument might consist of a single Wavesample that plays over the entire keyboard, while another might have as many 127 different Wavesamples.

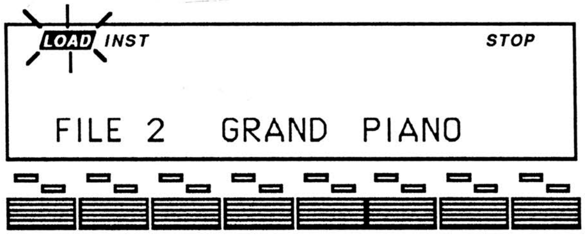
For controlling remote devices, you can create an Instrument which has no samples at all, and assign it to play *only* out MIDI, on a particular MIDI Channel. (See "Making a MIDI Instrument," p. 30.)

LOADING AN INSTRUMENT

You can Load up to eight different Instruments into the EPS at once (within the limits of memory). First, insert a disk containing one or more Instrument files into the disk drive.

- **Press *Load*. The LOAD indicator flashes.**

- **Press *Instrument*. The Display looks like this:**



When the LOAD indicator is flashing, the EPS is showing you disk files. (When LOAD flashes on the Display, think of it as a question mark – the EPS is saying "Load the file showing on the Display?") Pressing the Up or Down arrow button takes you through the Instrument files on the disk. If there are none, the Display will read "NO INSTRUMENTS."

Whenever a disk file is displayed as above, you can press the Left or Right Arrow button to see the size of that file in *Blocks* (a Block is 256 samples; 4 Blocks=1K samples). Press the Left or Right Arrow button again to return to the file name.

- **Use the Data Entry Slider or the Up and Down Arrow buttons to view the various Instrument files on the disk.**

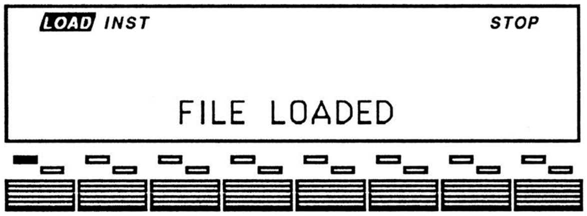
Each file has its own File Number. When an Instrument file is showing, the INST indicator is lit. The BANK Indicator will light when a Bank file is showing.

- **Find the Instrument you want to load, and press Enter.**

The Display will say "PICK INSTRUMENT BUTTON." The EPS wants to know into which Instrument location you wish to load the sound.

- **Press any of the eight Instrument•Track buttons.**

The EPS will begin immediately loading the Instrument into the selected location. The Display reads "LOADING FILE..." and the red LED *flashes* while the Instrument is being loaded.



Once the Instrument has been loaded, the Display briefly shows "FILE LOADED." The red LED above the Instrument button stops flashing and remains solidly lit, indicating that there is now an Instrument in that location which can be selected by pressing that button.

If you tell the EPS to load an Instrument into a location which already has an Instrument loaded (red LED lit), the new Instrument will be loaded into that location and the one that was there will be automatically deleted.

- **You might have to delete an Instrument(s) before loading the new one.**

If there are already one or more Instruments loaded into the EPS, there might not be enough free memory to load the new one. In this case, the Display will say "PICK INST TO DELETE." At this point you have three choices. You can:

1. **Press any loaded Instrument button**. That Instrument will be deleted from memory and the new one will be loaded; or
2. **Press *Enter•Yes***. The EPS will delete an Instrument (or Instruments, as needed) for you, starting from the *highest-numbered* one in memory; or
3. **Press *Cancel•No***. The Load command will be canceled with no harm done.

Note that you can continue to select and play existing Instruments while the new one loads.

BANKS

Banks provide a way to load a whole group of Instruments and Sequences into the EPS with a few button presses. When you save a Bank to disk, it is like taking a "snapshot" of the contents of the EPS Internal memory — the EPS stores in the Bank File information about which Instruments are loaded into which of the eight Instrument•Track locations, and the current Song and Sequences (if any). When you load a Bank, the EPS will reproduce the same state by loading those Instruments into the same locations and, if you choose, loading the Song with its related Sequences. A Bank will also save any Performance Presets you have created (see p. 17).

For example, you might have a Piano loaded into Instrument #1, a Bass in Instrument #2, and Drums in Instrument #3, and you have created a number of Performance Presets containing different keyboard configurations of those Instruments. Let's say you also have in memory a Song, which is composed of 12 Sequences. If you now save the contents of memory as a Bank, you can later call up this exact setup by loading the Bank.

A few important notes about Banks:

- The Bank File on a disk doesn't contain the actual Instrument and Sequence files — it is just a set of instructions telling the EPS what to load and where. All the Instruments and the Song in a Bank must be saved to disk individually prior saving the Bank.

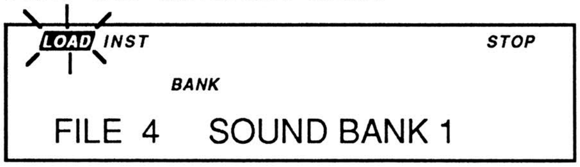
- All the Instrument and Sequencer files related to a Bank must be *on the same disk* as the Bank file.

- Any Instruments already loaded into locations not affected by the Bank will be left intact (memory permitting). You can select and play such Instruments while the Bank loads.

TO LOAD A BANK:

- **Press *Load*, then *Instrument*.**
- **Use the Up and Down Arrow buttons to view the different files.**

When a Bank file is showing, the BANK indicator lights on the Display along with the INST indicator. (If the BANK indicator doesn't light for any of the files, there are no Banks on the disk.)



- **Once a Bank file is showing, press *Enter•Yes*.**

If a Song was part of the Bank when it was saved, the Display asks "LOAD SONG TOO?" This gives you the choice of loading only the Instruments, or the Instruments *plus* the Song. If you press *Enter•Yes* at this point the Song which was in memory when the Bank was saved will be loaded in along with the Instruments, replacing the current Sequencer Memory. If you press *Cancel•No*, only the Instruments will be loaded and the EPS's Sequencer memory will be left intact.

- **Press *Enter•Yes*.**

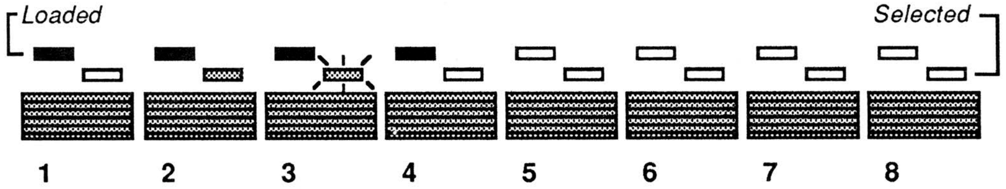
The EPS will begin loading the the Sequence data and the Instruments. As it loads each Instrument the Display tells you what it doing. As soon as any of the Instruments is finished loading you can select that Instrument and play while the rest of the Bank loads.

See p. 21 for instructions as to saving the contents of memory as a Bank.

PLAYING INSTRUMENTS

• First, press *Load* to make sure you are in LOAD Mode.

Now we'll look at the eight Instrument•Track buttons and how they function in LOAD Mode.



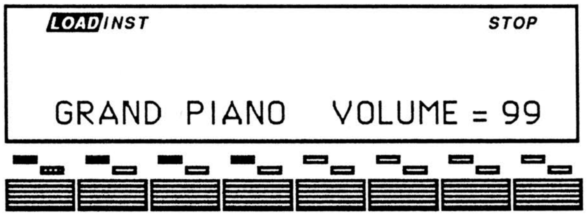
Instrument•Track Buttons

Each of these buttons represents a location or "slot" into which an Instrument can be loaded. The two LED's above each button tell you whether there is an Instrument loaded into that location, and whether it's selected, deselected or "Stacked."

- **The Red LED lights** to indicate that an Instrument is loaded into that location, and can be selected by pressing that button. In the above illustration, we see that Instruments are loaded into locations 1, 2, 3 and 4. If none of the red LED's are lit, no Instruments are loaded. (The red LED *flashes* while an Instrument is being loaded from disk.)
- **The Yellow LED lights** when the Instrument is selected (i.e. active on the keyboard). You select an Instrument by pressing its Instrument button. Pressing the button a second time "deselects" the Instrument, turning off the yellow LED. In the illustration, Instrument # 2 is selected. (If none of the yellow LED's are lit, that means that no Instruments are selected, and playing the keyboard won't make any sound.)
- **The Yellow LED *flashes*** when the Instrument is "Stacked" with one or more Instruments. An Instrument which is Stacked will play simultaneously with any other Instruments which are selected or Stacked. You Stack an Instrument by pressing its button *twice in rapid succession* (or "double-click" on the Instrument button, to borrow a term from those computers which use a "mouse"). In the above illustration, Instrument # 3 is stacked with Instrument # 2. You will hear both Instruments when you play the keyboard (wherever their keyboard ranges overlap, that is).

• Select a loaded Instrument (one whose red LED is lit) by pressing its Instrument button. The Display now looks like this:

Once you have loaded one or more instruments, select the Instrument you want to play by pressing the appropriate Instrument button. The LOAD indicator stops flashing, and the EPS shows you the Name of the selected Instrument, and its Volume setting.



You can adjust the volume of the Instrument with the Data Entry Slider or the Up and Down Arrow buttons. This lets you easily balance the levels of several Instruments when splitting the keyboard or Stacking sounds. If any other Instruments are loaded, you can select them in the same way, and adjust their volumes. Each time you select an Instrument, its name and Volume setting will appear in the Display.

• Try selecting different Instruments. Try "double-clicking" to Stack Instruments. Click once on a selected or Stacked Instrument to deselect it.

• Pressing the *Load* button again returns you to viewing disk files (LOAD flashing). You can also press *Cancel* to toggle back and forth between looking at Disk Files (LOAD flashing) and looking at Instruments in the Internal Memory (LOAD indicator lit but not flashing).

PATCH SELECT BUTTONS

The two *Patch Select* buttons above and to the left of the Pitch Bend Wheel can be programmed to provide instant access to up to four completely different sounds within each Instrument. The alternate sound might be a different set of samples, or the same samples with different envelopes, or a chorused version of the sound, or perhaps a different range of an Instrument.

What you are doing when you press either or both of the Patch Select buttons is selecting different Layers to play. A Layer is a group of Wavesamples spread across the keyboard — each Instrument can contain up to eight Layers. For each of the four possible Patches, any of these eight Layers can be made to play or to remain silent.

- **The *Patch Select* buttons are "momentary" — an alternate Patch will play *only on notes played while the button is held down* unless you "lock in" a Patch.**

- **To lock in a particular Patch so that it will play without having to hold any buttons, simply press the Instrument•Track button *while holding down the Patch Select button(s)* corresponding to the Patch you want to lock in.**

- **To return to the default Patch (neither Patch button down) after you have locked in one of the other Patches, press the *Instrument•Track* button again (with neither of the *Patch Select* buttons held down).**

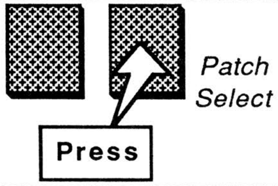
Try this: To see the Patches changing, and see which Layers are playing for each Patch you can go to the Layer Enable parameter on the EDIT/Instrument Page. Press *Edit;* then press the *Instrument* Page button twice in rapid succession.

Here's how a typical Instrument might react when you press the different *Patch Select* buttons:

With neither Patch Select button pressed:

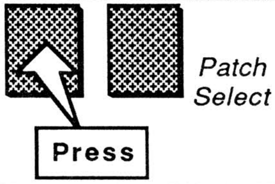
The Display shows:

`00 PATCH=1-------`



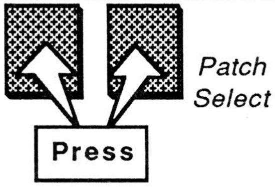
The Display shows:

`0✱ PATCH=-2------`



The Display shows:

`✱0 PATCH=--34----`



The Display shows:

`✱✱ PATCH=----5678`

- A *number* means that a given Layer is enabled, and will play in that Patch;
- A *dash* means that the Layer is disabled for that Patch and will not play.

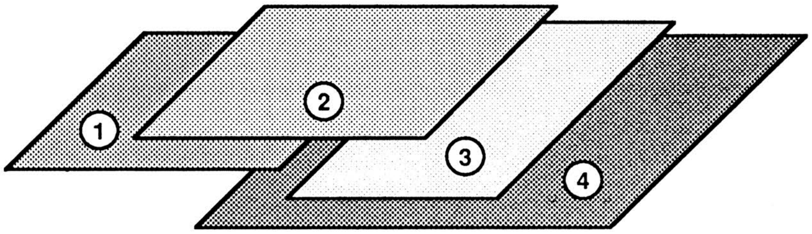
The *Patch Select* buttons are sent and received over MIDI as MIDI controller #70.

KEYBOARD RANGE (How Instruments Share the Keyboard in LOAD Mode)

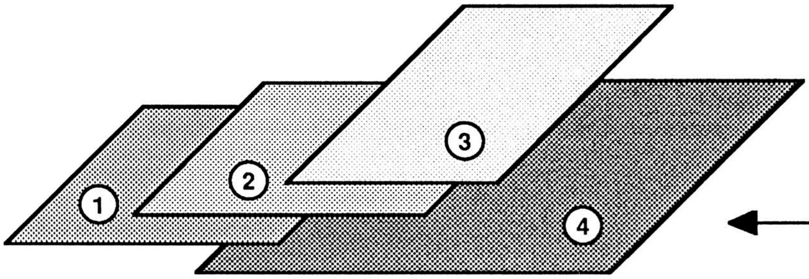
Whenever the EPS is in LOAD Mode (which is the normal performance mode) you are not limited to one Instrument on the keyboard at a time (or two, or three for that matter). Each Instrument has a *Keyboard Range*, which is the section of the keyboard that it will occupy when selected.

The range of an Instrument can be as much as the full 88 keys of a grand piano (for playing the EPS from an 88-note controller via MIDI) or as little as a single key. Up to eight Instruments can inhabit the keyboard in a way that might be termed a "Pile o' Instruments."

Imagine four pieces of paper, each a different size, piled on top of each other:

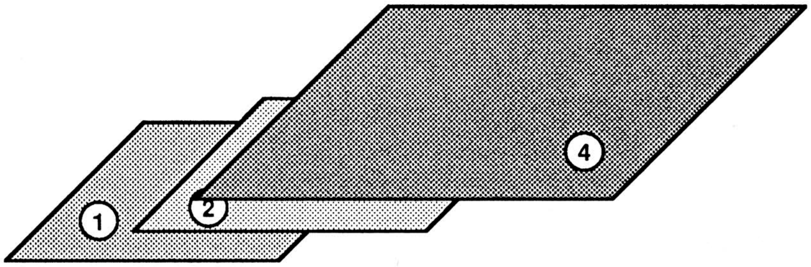


In the picture above, sheet #2 is on top of the pile — all of it is showing. The other three sheets are partially covered up. Now suppose we could magically bring sheet #3 up to the top of the pile. The pile would look like this:



Now all of #3 is showing:
Numbers 1, 2 and 4 are partially showing, partially covered up.

If we now bring #4 to the top of the pile, Numbers 1 and 2 are still partially visible, but #3 is covered up completely.



So it is with Instruments loaded into the EPS when in LOAD mode. Whenever you select an Instrument, it is *brought to the top of the pile*. That is, you will hear the most recently selected Instrument over its whole range when you play the keyboard. Any previously selected or stacked Instruments will be "covered up" wherever their ranges overlap with that of the newly selected one.

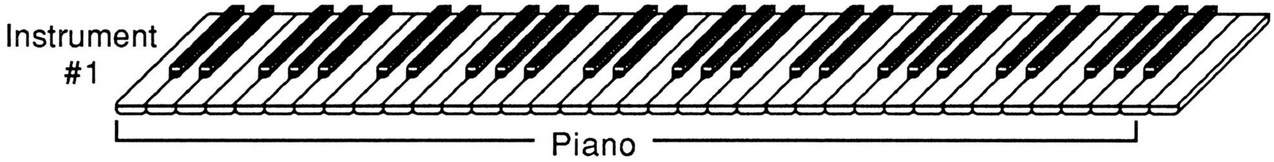
Wherever an Instrument is not "covered up," it will continue to play on the keyboard. So you can see that "splitting" the keyboard is as easy as selecting two or more Instruments with different (or overlapping) ranges.

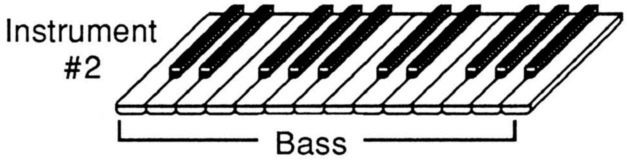
• All Instruments which are selected (yellow LED lit) are "on the pile," even if they are partially covered up by another Instrument.

Now let's try the sheets-of-paper analogy in terms of Instruments on the keyboard. Suppose you have two Instruments loaded into the EPS:

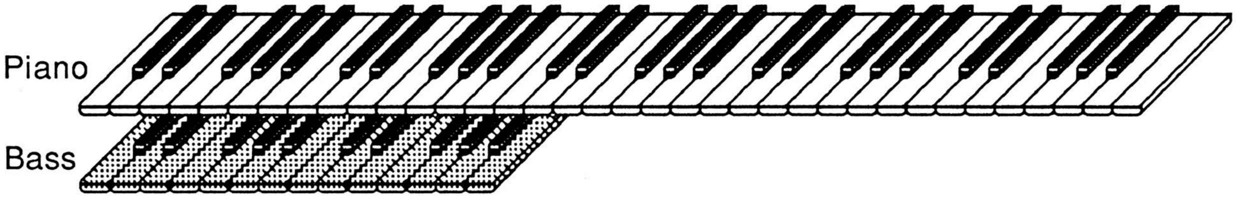
- Instrument #1 is a Piano sound, whose range is the entire keyboard;
- Instrument #2 is a Bass sound, whose range is only the bottom two octaves.

The ranges of the two Instruments can be shown like this:

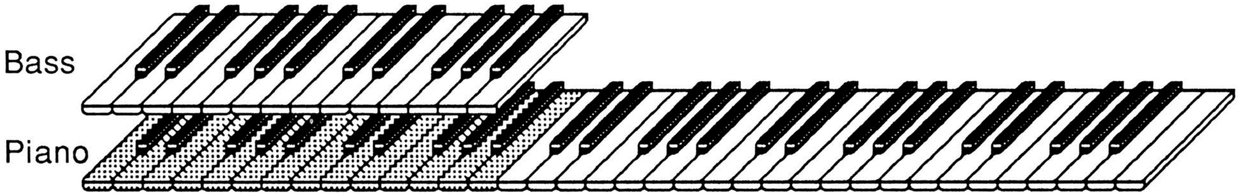




If you select the Piano, it will play over the whole keyboard, covering up the bass entirely:



Now you select the Bass. This brings it to the top of the pile, and it covers up the Piano, but only in the region where their ranges overlap (the bottom two octaves):



If you play now, you will hear the Bass in the bottom two octaves and the Piano over the rest of the keyboard. If you deselect the Bass (by pressing its Instrument button again) its yellow LED goes out and it returns the whole keyboard range to the Piano.

This same logic applies no matter how many instruments are loaded and selected. Whichever one you select comes to the "top of the pile."

IMPORTANT: The "Pile" described here *only* exists in LOAD Mode. In EDIT and COMMAND Modes, only one Instrument can ever be selected at a time.

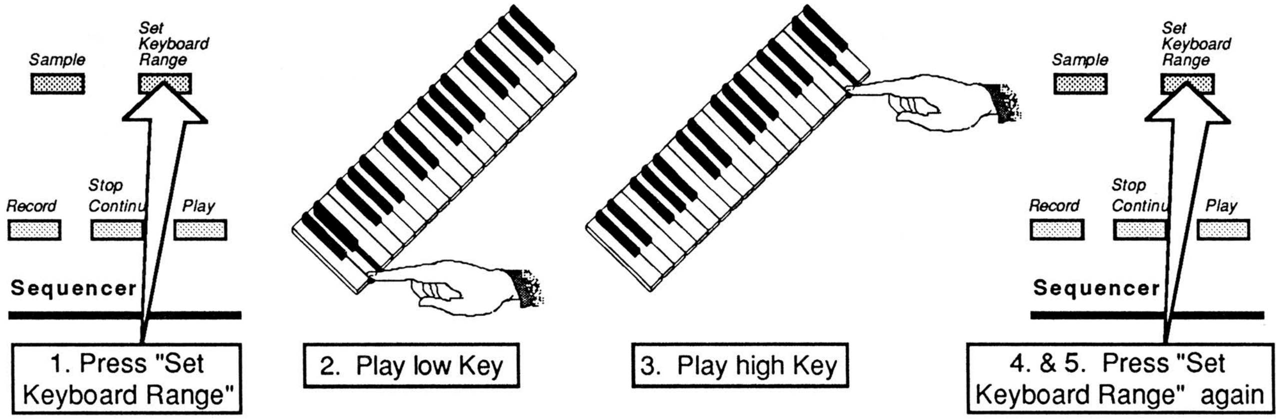
Additional Notes:

- Whenever a selected Instrument is covered up completely by the selection of another, its yellow LED goes out — it is automatically deselected.
- Up to all eight Instruments can be selected and can play on some part of the keyboard at once, as long as none is covered up completely. Also, up to all eight Instruments can be Stacked at once.
- Instruments which you "Stack" by double-clicking their Instrument buttons will play simultaneously with whatever other Instruments are on the pile. Selecting another Instrument, however, will bring that Instrument to the top, covering up any stacked Instruments as well as any selected ones.

CHANGING THE RANGE OF AN INSTRUMENT

You can easily change the keyboard range of any Instrument with the following steps:

• From LOAD mode, select the Instrument by pressing its Instrument button.
The Display will show the Instrument name and Volume setting. Then:

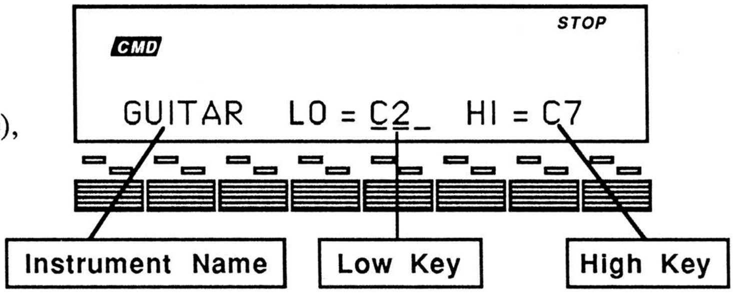

Sample
Set Keyboard Range
Record
Stop Contin
Play
Sequencer
1. Press "Set Keyboard Range"
2. Play low Key
3. Play high Key
Sample
Set Keyboard Range
Record
Stop Contin
Play
Sequencer
4. & 5. Press "Set Keyboard Range" again

1. Press the *Set Keyboard Range* button.

The EPS puts itself into COMMAND mode (CMD indicator lit in the Display window) and displays a special "Set Range" Page:

The screen shows:

- The first 9 letters of the Inst. Name,
- The lowest key it will play on (LO =),
- The highest key (HI =).


STOP
CMD
GUITAR LO = C2_ HI = C7
Instrument Name
Low Key
High Key

Note that the Low Key is underlined, meaning that it is selected and ready to be modified.

2. Play the key that you want to be the Instrument's new Low Key.

As soon as you play a note, that key becomes the new Low Key. The Display is updated accordingly, and the underline automatically switches to the High Key.

3. Play the key that you want to be the Instrument's new High Key.

That note becomes the new high key. The Display shows the new High Key, and the underline switches back to the Low Key.

The range is now set. If you aren't happy with the range you set, just play two more keys to set a new range. Watch the underline to see which setting (LO or HI) will be changed when you play a key. Each time you hit a key the underline will switch automatically.

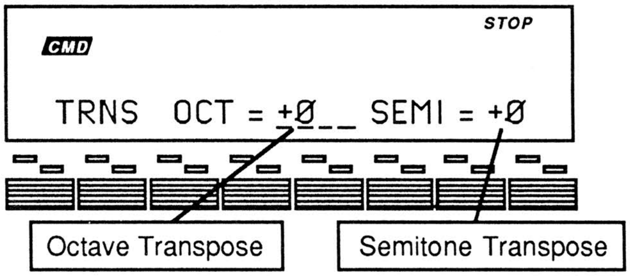
If you want, you can press the Right or Left Arrow button to move the underline between Low Key and High Key. You can also use the Data Entry Slider or the Up and Down Arrow buttons to adjust the underlined value (instead of playing a key) if you prefer.

Note that if you select a Low key which is higher than the High Key, the Instrument will have *no* range, and will not sound. Don't do that.

The next step is to adjust, or Transpose, the pitch of the Instrument (if necessary) so that it works in the new range.

4. Press the *Set Keyboard Range* button again.

The "Transpose Instrument" Page appears:



This screen lets you Transpose the Instrument up or down in Octave or Semitone Steps.

If you have changed an Instrument's range from the lower half of the keyboard to the upper, for instance, you'll need to transpose it down a few octaves so it plays at the right pitch in the new range.

- With "OCT=__" underlined, use the Data Entry Slider or the Up and Down Arrow buttons to raise or lower the pitch of the Instrument in Octave steps.
- If you wish to transpose the Instrument to a different key, press the Left or Right Arrow button to move the underline to "SEMI=__." Now you can use the Data Entry Slider or the Up and Down Arrow buttons to change the pitch of the Instrument by half-steps.

5. Press the *Set Keyboard Range* button once more.

The EPS returns to LOAD Mode, showing you the Instrument name and Volume setting. The range is now set.

Additional Notes:

- The current settings on the "Instrument Range" and "Transpose Instrument" Pages will be saved with the Instrument if you save it to disk.
- While on either of these pages, you can select a different Instrument (by pressing its Instrument button) to see and/or adjust its range and transpose settings.
- While on these pages (and whenever you are in COMMAND or EDIT Mode) only one Instrument at a time can be selected. You will know which Instrument you are working on because only its yellow LED will be lit, its name will show on the *Set Keyboard Range* Page, and you will hear only it when playing the keyboard.
- Up to eight different Keyboard Range and Transpose settings for each Instrument are possible using Performance Presets (see below).

PERFORMANCE PRESETS

Once you have a number of Instruments loaded into the EPS, there are so many possible combinations for selecting, stacking, mixing and manipulating the ranges of those Instruments that it can get a bit hard to manage in real-time performance. That is where Performance Presets come in.

For each Bank you save, you can create eight Performance Presets which allow you to store different keyboard configurations. By selecting a Performance Preset you can instantly recreate the state of the "Pile" at the time the Preset was created.

Within each Preset, the following information is saved for instant recall:

- Which Instruments are selected, deselected or stacked (on the “Pile” in LOAD Mode).
- The status of the Patch Select buttons for each Instrument•Track.
- The Volume (Mix Level) of each Instrument•Track.
- The Pan setting of each Instrument•Track.
- The MIDI Program Number of each Instrument (as selected on the EDIT/Instrument Page).

When the EPS is in LOAD Mode, with the LOAD indicator *not* flashing*, pressing the buttons numbered 1-8 (in the Page Section of the front panel) will select the eight Performance Presets.

* Remember, when the LOAD indicator is flashing, the Display is showing you disk files for loading. When the LOAD indicator is lit but *not* flashing the Display is showing you the name(s) of the of Instruments in the Internal Memory.

Additional Notes about Performance Presets:

- Pressing "0" will Deselect all the Instruments in memory and return them to the original settings for Range, Transpose, Volume, etc. which were in effect when they were loaded (or most recently saved to disk). This will undo the effects of any Presets currently in effect. You can press "0" at any time (whether a Preset is in effect or not) to return all you Instruments to their "starting points."
- If you save an Instrument to disk while a Preset is in effect, all the current values will be saved with the Instrument. Be careful that you don't accidentally save an Instrument with some strange values that you had meant to be part of a temporary setup. You can select "Preset 0" (above) before saving the Instrument to avoid this.
- If no Preset has been created for one of the eight possible locations, pressing that number will have no effect.

CREATING A PERFORMANCE PRESET

Whenever you have set up some configuration of Instruments (in LOAD Mode) which you want to preserve for later recall, you can save that configuration as a Performance Preset with the following steps:

- **In LOAD Mode, set up the Instruments in memory in some configuration you want to preserve.**
- **Press *Command*, then *Instrument*.**
- **Press the Left or Right Arrow button until the Display shows "CREATE PRESET."**
- **Press *Enter•Yes.***
- **Use the Data Entry Slider or the Up and Down Arrow buttons to select a number 1-8.** This will determine which of the eight possible Performance Presets the current keyboard configuration will be saved as.
- **Press *Enter•Yes.*** The Display reads "COMMAND COMPLETED," and the Preset is made.
- **Press *Load* to return to the "Pile."** Pressing the number that you selected for the Preset will now instantly recall this keyboard configuration. Repeat this procedure for each Performance Preset you want to create, selecting a new number (from 1-8) for each.

IMPORTANT: Performance Presets are saved to disk only when you save the contents of Memory as a Bank. When you load a Bank, any Presets which were present at the time the Bank was saved will be recreated. See p. 11 and p. 21 for more on Banks.

SUGGESTED USES FOR PERFORMANCE PRESETS

The most obvious use for Performance Presets is to have instant access to different combinations of Instrument selected, stacked and mixed in various ways. Here are some other possibilities:

- **Easier access to Patch Select variations.** Suppose you have selected the Piano sound and "locked in" some Patch variation (as shown on p. 13), such as the detuned Honky Tonk Piano sound. By creating a Preset while the alternate Patch is locked in, you can later return to that sound just by selecting the Preset.
- **Controlling MIDI Instruments.** Suppose you have created one or more MIDI Instruments for playing remote devices from the EPS (see p. 30). Each Performance Preset can store a different Program Number, Volume setting, Keyboard Range and Transpose amount for each of those Instruments. When you select a Preset, each Instrument which has MIDI or BOTH status ("SEND KEYS TO=__" on the EDIT/Instrument Page) will send a Program Change and MIDI volume information on its designated MIDI Channel (assuming TRANSMIT ON = INST CHAN on the EDIT/MIDI Page). So if you use the EPS as a MIDI controller, Performance Presets let you store up to eight totally different controller configurations.

PRESSURE (After-touch)

One of the most exciting features of the EPS is its exclusive Poly-Key™ keyboard, which, in addition to responding to the velocity with which you play, is capable of responding to Pressure (often called After-touch). There are two types of Pressure:

- **Channel Pressure**, also called Mono Pressure, is "global." Channel Pressure affects all notes that are playing when you exert pressure on any of the keys. Most MIDI instruments which currently implement Pressure send and receive only Channel Pressure. If you are playing or sequencing such an instrument from the EPS you should set the EPS to send Channel Pressure.
- **Key Pressure**, sometimes referred to as Polyphonic Pressure or Poly Pressure, is a more sophisticated and expressive type of Pressure. Key Pressure affects each key independently. If, for example, you play a three-note chord, pressing down harder on any of the three notes of the chord will modulate *only that note*. The other two notes will remain unaffected.

For each Instrument loaded into the EPS Internal Memory, you can determine whether it will respond to Key Pressure, Channel Pressure or none at all:

- Press *Edit*, then *Instrument.*
- Scroll left until the Display shows "PRESSURE MODE=__." Set this to PRESSURE MODE=KEY, CHAN, or OFF, depending on on the requirements of the Instrument. Since Pressure is a voracious consumer of Sequencer memory, make sure this is set to OFF when sequencing Instruments which do not respond to Pressure, such as Piano and Drum sounds.

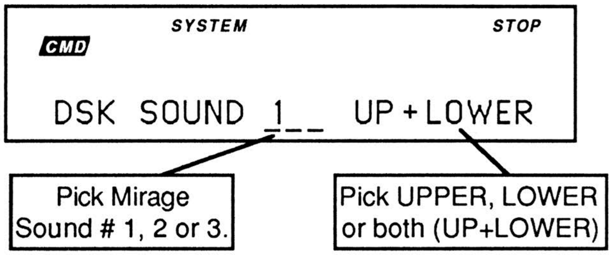
Sending Pressure via MIDI:

- When the "Smart MIDI Out" parameter on the EDIT/MIDI Page is set to "TRANSMIT ON=BASE CHAN" (see p. 29) the EPS will only transmit Pressure according to the setting of the "BASECHAN PRESSURE=__" parameter (also on the EDIT/MIDI Page) no matter what the settings are for individual Instruments.
- When "TRANSMIT ON=INST CHAN," each EPS Instrument will transmit Pressure according to its own Pressure Mode setting (described above).

LOADING A MIRAGE SOUND INTO THE EPS

The EPS has a command which lets you load ENSONIQ Mirage sounds and convert them into EPS Instruments. Note that this requires erasing whatever is in the EPS memory, so make sure any Instruments or sequences are saved to a formatted disk before proceeding.

- **Press *Command*, then *System*.**
- **Use the Left or Right Arrow button to scroll until the Display shows "LOAD MIRAGE-DSK SOUND."** The EPS needs to access the O.S. disk at this point (see p. 3).
- **Press *Enter•Yes*. The Display shows:**
  - Use the Up and Down Arrow buttons to select Mirage sound #1, 2 or 3; then
  - Press Right Arrow to move the underline and select which part of the Mirage sound (UPPER, LOWER or UP+LOWER) you want to load.


SYSTEM
STOP
CMD
DSK SOUND 1__ UP+LOWER
Pick Mirage Sound # 1, 2 or 3.
Pick UPPER, LOWER or both (UP+LOWER)

- **Press the Right Arrow button so the Display shows "PROGRAM = 1."** Here you can, if you wish, have the EPS load a different one of the four program variations which are part of each Mirage sound. This will always default to Program #1.
- **Press *Enter•Yes*.** The Display asks "MUST ERASE MEMORY, OK?"
- **Press *Enter•Yes*.** The Display responds "INSERT DISK, HIT ENTER."
- **Insert the Mirage disk and press *Enter•Yes*.** The Display reads "LOADING MIRAGE SOUND" while the sound is loading. Once loaded, it will come up as "UNNAMED INST." Save the sound to an EPS disk (see below), giving it an appropriate name as you do so.

DELETING AN INSTRUMENT FROM THE INTERNAL MEMORY

Sometimes you will want to delete an Instrument from memory — to free up some memory for sampling, for instance. Make sure you have saved the Instrument to disk before deleting it.

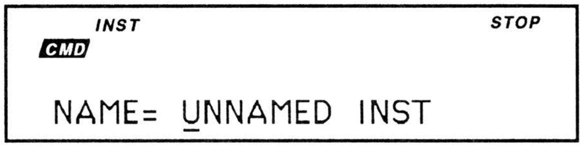
- **Press *Command,* then *Instrument.***
- **Verify that the Instrument you want to delete is selected.**
- **Scroll Right until the Display reads "DELETE INSTRUMENT."**
- **Press *Enter•Yes.*** The Display asks "DELETE <INST NAME>?"
- **Press *Enter•Yes.*** (Or press *Cancel•No* to abort the procedure.)

SAVING AN INSTRUMENT TO DISK

After you have created a new EPS Instrument, or made changes to an existing Instrument, you can save the Instrument to a formatted EPS disk with the following steps:

- **Insert a formatted disk into the drive.**
  If you don't have a formatted disk, format one before proceeding (see "FORMATTING A DISK" below).
- **Press *Command*, then press *Instrument.***
  This puts you on the COMMAND/Instrument Page, which contains all the Instrument-related commands. Check to make sure that the Instrument you want to Save is selected. If not, press its Instrument•Track button to select it.
- **Press the Left or Right Arrow button until the Display reads "SAVE INSTRUMENT."** (Or use this shortcut — after pressing *Command*, double-click on the *Instrument* button.)
- **Press *Enter•Yes.***
- **Edit the Instrument Name (if needed):**

  The Display shows the current name with a Cursor (underline) beneath the first character. If you want to give the Instrument a new name, do so at this time.



NAME= UNNAMED INST

  Use the Data Entry Slider or the Up and Down Arrow buttons to change the underlined character, then press the Left or Right Arrow button to move the underline. Repeat until the Display shows the name you want. (If you don't need to rename the Instrument, just skip this step.)
- **Press *Enter•Yes.***
  The Display will read "SAVING <INST NAME>" while the Instrument is being saved. Note that you can continue playing the keyboard while the Instrument is being saved, and you can select other Instruments, but you cannot get out of COMMAND Mode until the Save procedure is done.
  • If there is already an Instrument file with the same name on the disk, the Display will ask "DELETE OLD VERSION?" Press *Enter•Yes* to save the Instrument, replacing the one on the disk. This is for updating Instruments to which you have made changes. Or press *Cancel•No* to abort the procedure.
  • If there is not enough free space on the disk for the Instrument, the Display will say "NO ROOM ON DISK." Save the Instrument to another disk (or delete some files from the disk).

DELETING AN INSTRUMENT OR BANK FILE FROM A DISK

Deleting of disk files is done from LOAD Mode. To Delete (erase) an Instrument from a disk:

- **Press *Load*, then press *Instrument.***
- **Press the Up or Down Arrow button until the file you want to Delete is showing on the Display.**
- **While holding down the *Load* button, press *Cancel•No.***
  The Display will ask "DELETE <FILE NAME>?"
- **Press *Enter•Yes.***

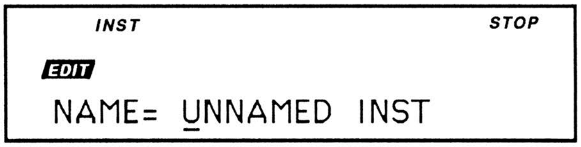
NAMING (OR RENAMING) AN INSTRUMENT

Each EPS Instrument has a 12-character name. When you create a new Instrument, either through sampling it, converting a Mirage sound or using the CREATE NEW INSTRUMENT command, the new Instrument is automatically given the default name "UNNAMED INST." You can change that name to one of your choosing at any time. Note that whenever you save an Instrument to disk, as shown earlier, you are also given the opportunity to rename it at that time. To name (or rename) an Instrument:

- **Press *Edit*, then press *Instrument*.**

  This puts you on the EDIT/Instrument Page which contains those parameters related to each EPS Instrument. Make sure the Instrument you want to rename is selected. If not, press its Instrument•Track button to select it.
- **Press the Left or Right Arrow button until the Display shows:**

  You see the current name of the Instrument, with a Cursor (underline) beneath the first character of the name.



INST STOP

EDIT

NAME= UNNAMED INST

Use the Data Entry Slider or the Up and Down Arrow buttons to change the first character. Then press the Right Arrow button to move the Cursor to the next character, and use the Data Entry Slider to change it. Continue this until the Display shows the name you want. **Hint:** Moving the Data Entry Slider all the way *down* gives you a blank space.

SAVING A CONTENTS OF MEMORY AS A BANK

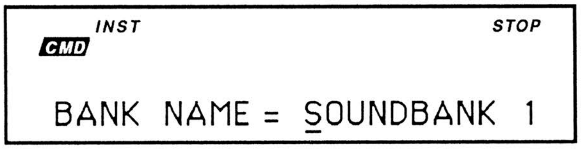
Saving a Bank is like taking a "snapshot" of the contents of the EPS memory. When you later load a Bank the EPS "looks" at that snapshot and tries to recreate what was in memory when the Bank was saved. You can use Banks to automatically load a new group of Instruments and/or a new Song.

Banks are valuable for this reason: EPS Songs and Sequences have no way of knowing which Instruments are loaded into various Instrument•Track locations. Suppose, for example, you record a Track with a piano sound, but then load a kazoo sample into the Instrument location where the piano was. The Track will now play on the kazoo. By using Banks you can avoid this sort of thing.

It's easy to save the contents of the EPS memory as a Bank. Just bear in mind that any Instruments in the Internal memory, as well as the Song, must be saved separately *on the same disk* before they can be saved as a Bank. This means that the contents of a Bank are limited to the size of a single floppy disk (unless you have a hard disk connected to the EPS via the optional SCSI port).

- **Save any Instruments in memory to disk using the SAVE INSTRUMENT command on the COMMAND/Instrument Page.**
- **Save the Song to disk (if you want a Song as part of the Bank) using the SAVE SONG + ALL SEQS command on the COMMAND/Seq•Song Page.**
- **Press *Command,* then *Instrument*.**
- **Press the Left or Right Arrow button until the Display reads "SAVE BANK."**
- **Press *Enter•Yes*. The Display shows:**

  The default name appears, with a cursor (underline) beneath the first character. Name the Bank, using the Data Entry Slider and up and Down Arrow buttons to change the character and the Left and Right Arrow buttons to move the Cursor.



INST STOP

CMD

BANK NAME = SOUNDBANK 1

(If you are updating an existing Bank, don't rename the Bank; just press *Enter•Yes* and then press *Enter•Yes* once more in response to the question "DELETE OLD VERSION?")

- **Press *Enter•Yes*.**

FORMATTING A DISK

Before you can save EPS Instruments or Sequences to a disk it must be formatted. You can use a blank disk or one that was previously formatted by a different device, such as a computer. Note that formatting will completely erase anything on the disk.

- **Insert the disk to be formatted into the drive.**
- **Press *Command*, then press *System*.**
- **Press the Left or Right Arrow button until the Display reads "FORMAT FLOPPY DISK."**
- **Press *Enter•Yes*.**
  - The Display will read "ERASE AND FORMAT DISK?"
- **Press *Enter•Yes*.**
  - While the disk is being formatted, the Display reads "FORMATTING..." Formatting takes about 80 seconds per disk. When it's done the Display says "FORMAT COMPLETE."
  - If the format fails, the Display will read "FORMAT FAILED." Try again with a different disk.

Note: After formatting a Disk you can, if you want, copy the EPS Operating System (O.S.) onto that disk (see below). Having the O.S. on your sound disks can be convenient — some advanced operations require the EPS to load part of the O.S. from disk before proceeding. If the disk in the drive is not an O.S. disk, the EPS will ask you to insert one. However, putting the O.S. on a disk leaves a little less space (about 160 Blocks less) for saving Instruments and Sequences.

COPYING THE EPS OPERATING SYSTEM TO A FORMATTED DISK

Use this procedure to:

- Put the EPS Operating System on a new disk which you have formatted, or
- Update the Operating System on an existing disk with a newer version.

NOTE: You cannot copy the Operating System to a disk onto which you have already saved Instruments or Sequences, but not the O.S. Attempts to do so will result in an error message.

This procedure requires erasing the EPS's Internal Memory, so save any important data before proceeding. Also, you'll need a disk containing the Operating System which you want to copy.

- **Insert the disk containing the O.S. you want to copy (the source disk) into the drive.**
- **Press *Command*, then press *System*.**
- **Press the Left or Right Arrow button until the Display reads "COPY OS TO FORMATTED DISK."**
- **Press *Enter•Yes*.**
  The Display says "MUST ERASE MEMORY, OK?" If you need to save any Sounds or Sequences, press *Cancel* and save the data before proceeding.
- **Press *Enter•Yes*.**
  The Display says "INSERT MASTER OS DISK." Make sure the source O.S. disk is in the drive.
- **Press *Enter•Yes*.**
  The Display says "READING OS INTO MEMORY," and then "INSERT FORMATTED DISK."
- **Insert the disk onto which you want copy the O.S. (the destination disk) into the drive.**
- **Press *Enter•Yes*.**
  - The Display reads "WRITING OS TO DISK" while the O.S. is being copied to the disk.
  - When it's done, the Display reads "COPY OS DONE. ANOTHER?" If you want to copy the same O.S. to another disk, insert another formatted disk and press *Enter•Yes*. You can repeat this procedure as many times as you like. This makes it easy to update all your O.S. disks when a new EPS Operating System is released.
  - When you are done, press *Cancel•No*.

SAMPLING

Digital sampling is really just another name for digital recording:

- When you sample a sound into the EPS, you are actually recording it, much as you would with a tape deck.
- When you play the sample from the keyboard, you are playing back that recording.
- When you play different notes to transpose the sample up or down in pitch you are, in effect, changing the playback rate — just as if you sped up or slowed down a tape deck.

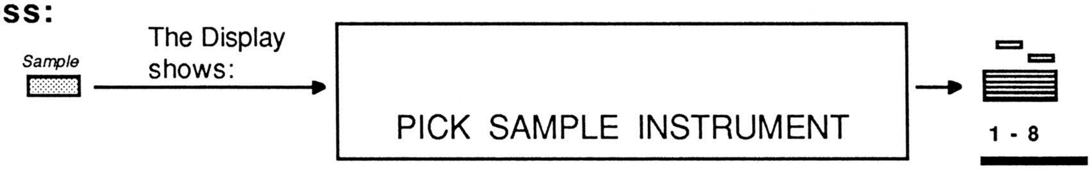
The difference is that with a sampler such as the EPS you can play the recording back at many different pitches at once. What's more, you can "loop" a segment of the sound so that it will sustain indefinitely when a key is held down; you can play it backwards; you can apply Pitch, Filter and Volume envelopes to customize its timbral and dynamic characteristics.

EASY SAMPLING

Let's try a simple one-shot sample. First we need a source — a microphone, synthesizer, the output of a mixer, etc. That sound source should be connected to the Audio In jack of the EPS. Note that the EPS has no separate level control on the input. The level of the signal coming into the EPS must be adjusted at the source.

The EPS's Audio Input can be switched to accept a *line-level* signal (such as that from a mixer or a synthesizer), or a *mic-level* signal (from a microphone). This is set after you enter the Level-Detect mode. To initiate sampling:

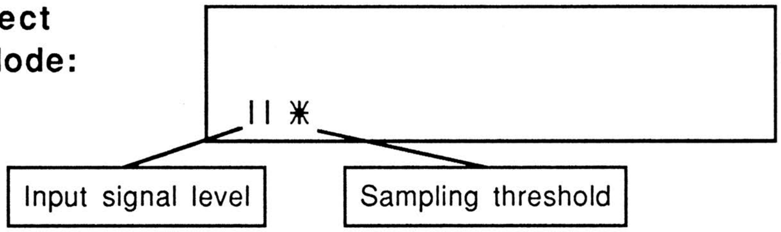
Press:



- **Press the *Sample* button to the right of the Display.**
  The EPS must access the Operating System disk at this point to load the Sampling routine. If the disk in the drive doesn't contain the Operating System (or if there's no disk in the drive) the Display will say "LOAD OS DISK - HIT ENTER." Put the O.S. disk into the drive and press *Enter*.
  The Display says "PICK SAMPLE INSTRUMENT."

- **Press an unused (no red LED lit) Instrument•Track button.**
  (If you select an Instrument location where there is already an Instrument loaded, the EPS goes to a Re-sampling screen. Don't do that yet.)
  The EPS goes into Level-Detect (or VU) mode:

Level-Detect (or VU) Mode:



In Level-Detect mode the Display acts like a peak-reading VU meter, the vertical bars on the Display lighting from left to right to show the level of the incoming signal. The *star* represents the sampling threshold — the EPS will not begin recording until the signal crosses this level. Use the Up and Down Arrow buttons to adjust the sampling threshold to a higher or lower level.

Before you proceed, there are a number of Sampling parameters you can adjust. These parameters are accessed by pressing the Left or Right Arrow button while in Level-Detect mode.

- **While in Level-Detect mode, press the Right Arrow button.**

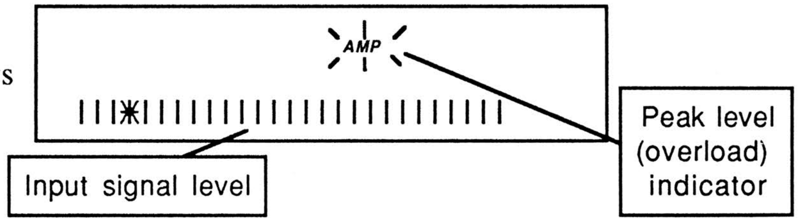
  Scrolling to the right (or to the left) from the Level-Detect screen reveals the Sampling parameters and lets you adjust them to your current needs. These parameters are:
  - **SAMPLE RATE** — This is the input sample rate. It determines how many times per second the EPS will sample the sound. It is adjustable from 6.25 KHz to 52.1KHz. Higher sample rates result in better frequency response, but shorten the amount of available sampling time (one of life's little trade-offs). Those sample rates with a star next to the number are "optimized rates" — those for which there is an ideally matching Filter Cutoff frequency (see below). Now press the Right Arrow button again and you will see:
  - **FILTER CUTOFF** — This is the cutoff frequency of the anti-aliasing input filter. This very steep filter gets rid of everything above the Cutoff Frequency. Whenever you change the Sample Rate (above) the EPS automatically resets the Filter Cutoff to its optimum value for that sample rate, so you don't usually need to adjust this parameter at all. Press the Right Arrow button again:
  - **PRE TRIGGER** — This lets the EPS start the sample *before* the sampling threshold is reached. The Pre-trigger amount is shown in milliseconds (thousands of a second) with a range from 0 to 127 msec. So when "PRE TRIGGER=40 MSEC," after a sample is recorded the EPS "backs up" the Sample Start to a point 40 milliseconds before the threshold was reached. Pre-triggering allows you to use a relatively high sampling threshold without missing any of the low-level stuff at the beginning of the sound. Press the Right Arrow button again to see:
  - **INPUT LEVEL= MIC/LINE** — Here you select either MIC-level (for when a microphone is connected directly to the Audio In) or LINE level (for the output of a mixer, pre-amp, synthesizer, etc). Make sure it is set appropriately for your current needs. Press the Right Arrow button again:
  - **SAMPLE TIME** — This tells you how much sampling time is available, taking into account the current Sample Rate and the amount of free Internal Memory. It is a read-out only and can not be adjusted (though changing the sample rate will cause this number to change).

- **Press the Right Arrow button once more to return to Level-Detect mode.**

- **Adjust the level of the incoming signal.**

  As you play the signal into the EPS (or speak into the mic if you have a microphone plugged into the Audio In) you will see the level change on the Display. When the signal hits the peak (or maximum) level, the AMP indicator light will flash.

If the AMP indicator flashes occasionally, that's OK. If it stays lit for more than an instant, however, it indicates clipping – the input signal is too high.


AMP
III✱IIIIIIIIIIIIIIIIIIIIIIIIII
Input signal level
Peak level (overload) indicator

Adjust the level of the incoming signal so that you get the highest possible reading without lighting the AMP Indicator for more than a brief flash. You will notice that the incoming signal is passed through to the EPS Audio Output when sampling. Note however that this is a full-level signal, not affected by the EPS volume control. Once you have the level adjusted:

- **Press *Enter*. (Or you can press the footswitch to initiate sampling.)**

  The alphanumeric Display goes out and the REC indicator above the Display lights while the EPS is sampling. Remember that if the threshold is set higher than 0, the EPS will not begin actually sampling until the input signal crosses the threshold.

- **Play the sound to be sampled.**

  Play the synth or recording, or speak into the mic.

- **Press *Cancel* (or press the footswitch again) to stop sampling.**

  Or, if you don't stop it by pressing *Cancel* or the footswitch, the EPS will continue sampling until it has used up all the available memory.

- **Play the Root Key.**
After you have pressed *Cancel* to halt sampling (or the memory is full) the Display flashes "PLAY ROOT KEY." The Root Key is the note on the EPS keyboard from which the sample will play back at "unity" — the same pitch as the original input signal. So whichever key you press in response to the "PLAY ROOT KEY" prompt is the key that will play back exactly what you sampled.

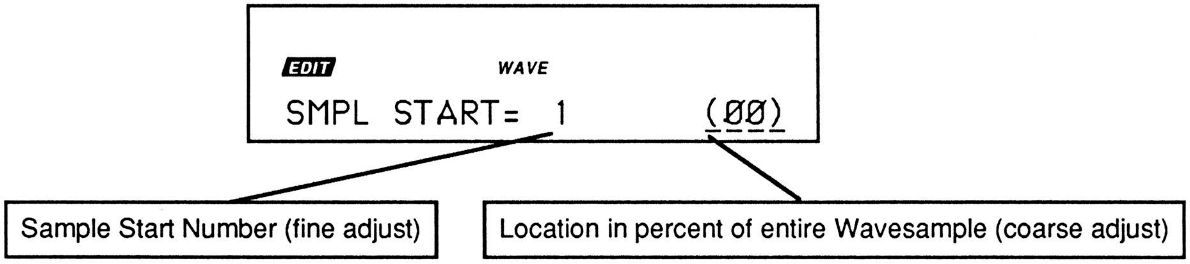
MOVING THE START AND END OF THE WAVESAMPLE

When you have finished recording a sample, the EPS puts you on the EDIT/Wave Page, where you can adjust the Loop Mode, Sample Start, Sample End, and other Wavesample pointers. To conserve memory, it's a good idea to move the Sample Start and Sample End to eliminate any "dead space" at beginning or end, and then Truncate the Wavesample using the TRUNCATE WAVESAMPLE command on the COMMAND/Wave Page (see p. 28).

You can also reach the EDIT/Wave Page by pressing the *Edit* button, then the *Wave* button.

If there is empty space (silence) at the beginning of the sample:

- **Press the Left or Right Arrow button to scroll to the Sample Start (shown below)** When the Sample Start and Sample End are displayed on the EDIT/Wave Page there are two ways to adjust them — you can move in large steps by adjusting the Percent setting, or move one sample at a time by choosing the Fine adjust.

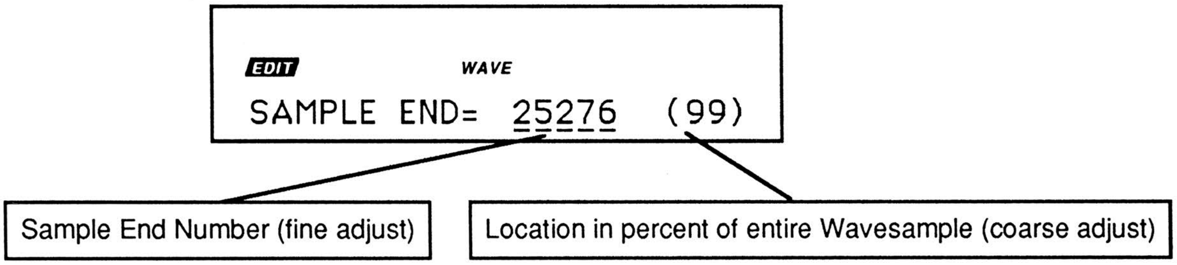

EDIT
WAVE
SMPL START= 1 (00)
Sample Start Number (fine adjust)
Location in percent of entire Wavesample (coarse adjust)

- **Move the Cursor (underline) to the Percent (Coarse Adjust) reading.**
The Coarse Adjust reading is the one in parentheses. Changing this value will move the Sample Start in steps of one percent of the entire Wavesample.

- **Use the Data Entry Slider or the Up and Down Arrow buttons to move the Sample Start ahead until the dead space is gone when you play.**
Once you have gotten close using the Percent setting, press the Left Arrow button to underline the Fine Adjust setting. Now the Data Entry Slider or the Up and Down Arrow buttons will move the Sample Start in small steps, letting you fine-tune its exact position while playing the sample.

Now you can eliminate any unused space at the end of the sample:

- **Press the Right Arrow button to scroll to the Sample End (shown below)**
Again you see the Sample number (Fine Adjust) and the Percent (Coarse Adjust).


EDIT
WAVE
SAMPLE END= 25276 (99)
Sample End Number (fine adjust)
Location in percent of entire Wavesample (coarse adjust)

- **Move the Cursor to the Percent reading.**
  While playing the sample, use the Data Entry Slider or the Up and Down Arrow buttons to move the Sample End back until the sample stops at the end of the sound. Or, if you have looped the sound (MODE=LOOP FORWARD or LOOP BIDIRECTION), the EPS will not let you adjust the Sample End back past the Loop End. Move the Data Entry Slider all the way down to set the Sample End to a point just past the Loop End.

LOOPING

After making a sample it is often necessary to "loop" — play over and over — a portion of the sound, so that it can sustain indefinitely when the key is held down. Getting a good loop tends to be the most difficult part of sampling, and a full discussion of looping techniques is beyond the scope of this Musician's Manual. You will find that in the *Advanced Applications Guide*. Here, then are a few tips to get you started:

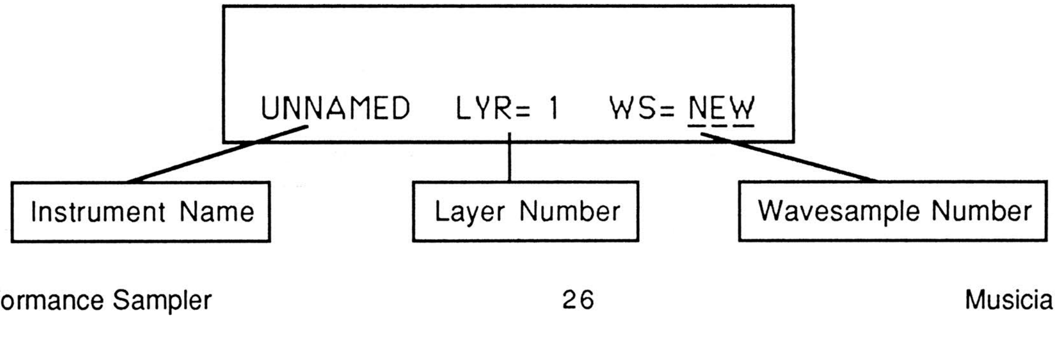
- **Turn ON the AUTO-LOOP FINDING parameter on the EDIT/System Page.**
  Press *Edit*, then *System*, then scroll left to the parameter AUTO-LOOP FINDING. Make sure it is ON. When AUTO-LOOP FINDING=ON, every time you move the Loop Start or Loop End points of a Wavesample, the EPS picks only "optimized" loop points – ones most likely to work.
- **Set the Playback Mode of the Wavesample to MODE=LOOP FORWARD.**
  On the EDIT/Wave Page, the Playback Mode determines whether the wavesample will loop (among other things). Set it to MODE=LOOP FORWARD. Then...
- **Scroll right to the LOOP START parameter.**
  Move the Cursor to underline the Loop Start Percent Reading (the number in parentheses). While holding down a note, move it away from the beginning of the Wavesample (the 25 to 50 percent range is usually a good starting point).
- **Scroll right to the LOOP END parameter.**
  Move the Cursor to underline the Loop End Percent Reading (in parentheses) and move it towards the beginning of the Wavesample. Move the Loop Start and the Loop End around until you find the best sounding loop.

MULTISAMPLING

Many sounds require that you make more than one sample, with each sample covering a different range of the Instrument. This is because if you transpose a sound too far (up or down) from its original pitch it begins to sound unnatural. Another application for making multiple samples is when you are sampling something like a drum set, where you want several entirely different sounds on the keyboard at once.

The EPS makes it easy to "multisample" — which is what we call this process of making several samples within one Instrument.

- **Make your first sample as described above in "Easy Sampling."**
- **Press the *Sample* button.**
  The Display reads "PICK SAMPLE INSTRUMENT."
- **Press the Instrument•Track button of the Instrument you just sampled.**
  When you select an existing Instrument in response to the "PICK SAMPLE INSTRUMENT" prompt, the EPS shows the multisampling screen:



Here you see:
- The first nine letters of the Instrument name (which is always "UNNAMED INST" for newly sampled sounds);
- The number of the current Layer; and
- Which Wavesample will be sampled after you press *Enter*. The Default here is "NEW," meaning that a new Wavesample will be created in the same Layer of the Instrument.

- **Press *Enter.***

This puts you back in Level-Detect mode. Now proceed to sample the new Wavesample just as you did the first one:

- Adjust the incoming level so that it doesn't clip.
- Press *Enter* to commence sampling.
- Play the sound to be sampled.
- Press *Cancel* (or the footswitch) to halt sampling.
- Play the new Root key — the key at which you want the new sample to play back.

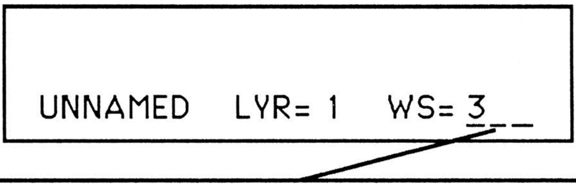
Once you have assigned a Root Key to the new sample, the EPS automatically adjusts the split point to be midway between the Root Keys of the two samples.

Follow the exact same procedure to continue making multiple samples within the Instrument.

RESAMPLING AN EXISTING SAMPLE

Let's suppose you have made four multisamples of some instrument, and you now want to go back and redo the third one. The procedure is almost the same as that for making a new multisample, except that instead of pressing *Enter* while "WS=NEW" you will first pick one of the existing Wavesamples by playing it on the keyboard.

- **Press *Sample*, then select the Instrument into which you want to sample.**
  The Multisampling screen appears as before.
- **Move the Cursor (underline) to "WS =__"**
  The Cursor should be beneath the Wavesample select (WS=__). If it's not, use the Right Arrow button move it there.
- **Play the keyboard to select the Wavesample to redo.**
  As you play notes you will see the word NEW replaced by the number of the Wavesample you are hearing. As you play different notes the Wavesample number is updated. When you hear the one you want to resample, and see its number on the Display, it is selected to be resampled. Or you can scroll to the Wavesample number you want to resample using the Up and Down Arrow buttons.


UNNAMED LYR= 1 WS= 3__

Play the keyboard until you hear (and see the number of) the Wavesample you want to resample.

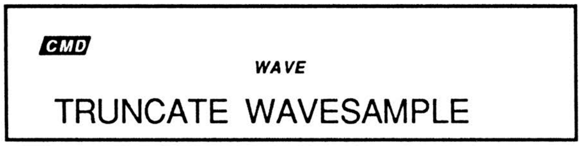
- **Press *Enter* and continue with sampling as before.**
  The original Wavesample will be erased, replaced by the new one.

When you resample an existing Wavesample the EPS will preserve the keyboard range, all wavesample parameters (envelopes, etc.) and, when possible, the Loop Points of the original sample.

TRUNCATING THE WAVESAMPLE TO CONSERVE MEMORY

Moving the Sample Start and Sample End as described above will not return the unused part of the Wavesample to the EPS's memory so that it's available for other samples or Instruments. To do that you need to trim the Wavesample using the TRUNCATE WAVESAMPLE command.

- **Make sure the Wavesample you want to Truncate is selected (see below).**
- **Press the *Command* button, then press *Wave*.**
- **Press the Left or Right Arrow button to scroll through the available commands until the TRUNCATE WAVESAMPLE command appears:**



TRUNCATE WAVESAMPLE

- **Press *Enter*.**

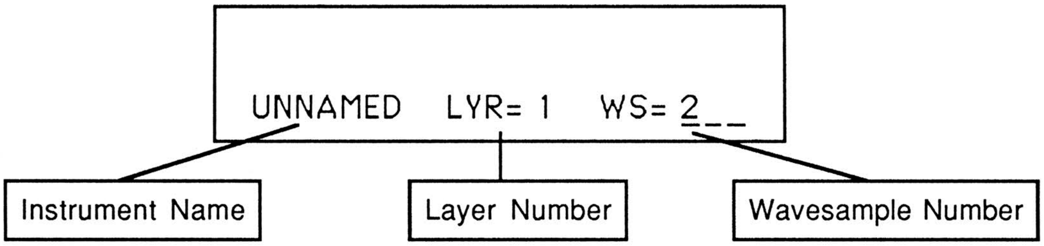
  The Display reads "DATA BEING PROCESSED," then "COMMAND COMPLETED." Now any data that was before the Sample Start and after the Sample End has been removed, and the memory it used up returned to the available memory.

SELECTING A WAVESAMPLE TO EDIT

When you have several samples in memory you need a way to choose (or sometimes to just find out) which one you are working on. The EPS has a simple procedure for selecting the current Wavesample:

- **Press the *Edit* button**

  When you press *Edit* the EPS responds with the following screen:



UNNAMED LYR= 1 WS= 2__

This can be called the"WHAT-DO-YOU-WANT-TO-EDIT?" Page. Here you determine the current Instrument, Layer and Wavesample.

- **Move the Cursor (underline) to "WS =__".**

  The Cursor should be beneath the Wavesample select (WS=__). If it's not, use the Right Arrow button move it there.

- **Play the keyboard to select the Wavesample you want to work on.**

  When you play the keyboard, the Wavesample number showing on the Display will change as you as you play different Wavesamples. Whichever one is showing is considered the current Wavesample — the one which will be affected by any Wave EDIT or COMMAND functions.

- **Pressing *Edit* again will return you to the last EDIT Page you were on.**

  This lets you select a different Wavesample and then quickly return to the same parameter (Sample Start or End, for example) you were editing.

MIDI FUNCTIONS

MIDI (Musical Instrument Digital Interface) is an industry-wide computer communications standard which allows electronic musical Instruments to "talk to" each other. MIDI has opened up incredible possibilities for performing and recording music, and ENSONIQ products have always been designed to take full advantage of its power and potential. The EPS is no exception.

Not only can it act as a master controller, letting you play and sequence many other devices right from the EPS keyboard, but you can use the EPS's System Exclusive Recording function to store data from other devices as well. Here we will cover those aspects necessary to get you started. The full extent of the EPS MIDI implementation is covered at length in the *Advanced Applications Guide.*

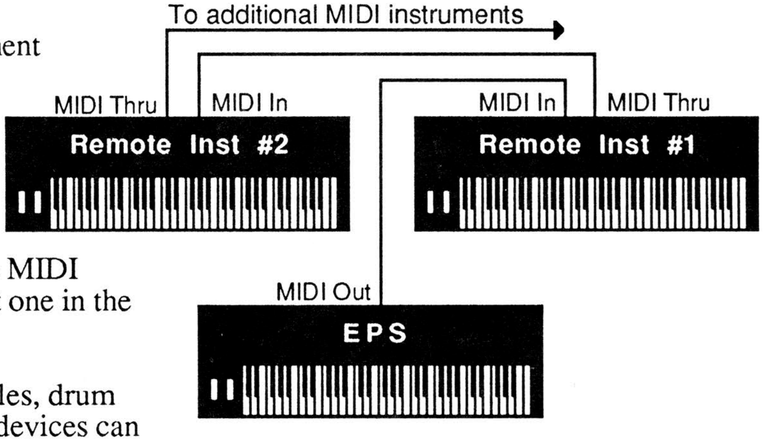
MIDI CONNECTIONS

Here's a typical MIDI setup:

Connect the MIDI Out of the EPS to the MIDI In of any other MIDI Instrument to play or sequence that device from the EPS. For driving multiple devices, connect the MIDI Thru of the first Instrument to the MIDI In of the second.

For additional instruments, connect the MIDI Thru of each to the MIDI In of the next one in the Chain.

Keyboards, rack-mounted voice modules, drum machines, sequencers and other MIDI devices can all be connected in this fashion.

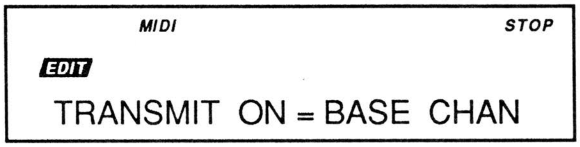


"SMART MIDI OUT" MODE

There is a parameter in the EDIT/MIDI Page which determines how MIDI information will be sent by the EPS. If you plan to be playing or sequencing other MIDI devices from the EPS keyboard, you will want to first put the EPS into what we call "Smart MIDI Out" Mode. To select the "Smart MIDI Out" parameter:

- **Press *Edit*, then *MIDI*.**
- **Press the Left or Right Arrow button until the Display shows:**

The setting of this parameter determines whether the EPS will act as a simple MIDI transmitter, sending only on the Base MIDI Channel; or whether each Instrument will send independently on its own MIDI Channel.



MIDI STOP

EDIT

TRANSMIT ON = BASE CHAN

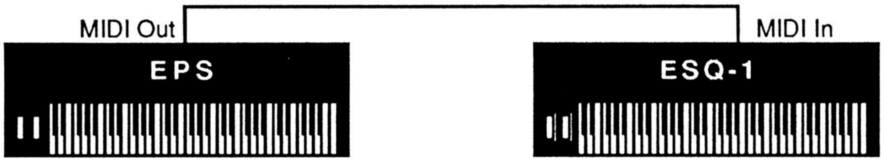
- When TRANSMIT ON = BASE CHAN, the EPS will always transmit notes, controllers and Program Changes on the Base MIDI Channel (also selected on the Edit/MIDI Page) and only on that channel, no matter what Instruments are selected from the front panel.
- When TRANSMIT ON = INST CHAN, the EPS is in "Smart MIDI Out" Mode. Each of the eight EPS Instruments will send on its own MIDI Channel (or not at all, if assigned LOCAL status). Each Instrument will have its own MIDI Program Number and its own PRESSURE setting.

- **Set to TRANSMIT ON = INST CHAN**

Now we are ready to proceed with making a MIDI Instrument to play one of your remote devices.

MAKING A MIDI INSTRUMENT

Let's suppose that you have a synthesizer (say an ENSONIQ ESQ-1) connected to the EPS as shown below:



You want to be able to select and play the ESQ-1 from the EPS front panel just as you would an EPS Instrument. To accomplish this, you can make an EPS Instrument which contains no sample data, and which will not sound on the EPS but will *only* play over MIDI. Such "MIDI Instruments," as we call them, use up very little memory, and can be loaded from disk almost instantly. They are the key to using the EPS as a MIDI controller keyboard and MIDI Sequencer.

- **Press *Command*, then press *Instrument*.**
- **Scroll left or right until the Display reads 'CREATE NEW INSTRUMENT."**
- **Press *Enter•Yes*.**

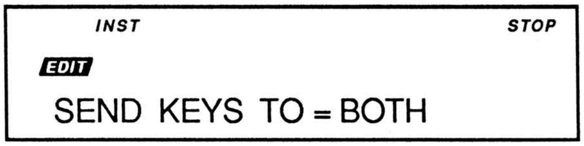
  The Display says "SELECT UNUSED INST= 1." The new Instrument will be created in the Instrument•Track location indicated. You can select a different location (by pressing any unused Instrument•Track button), or just press *Enter*.
- **Press *Enter•Yes*.**

  The EPS will create a new unnamed Instrument in the location you indicated. The new Instrument is selected (its yellow LED is lit). Note that it contains no Layers or Wavesamples, and thus will make no noise when you play the keyboard.

- **Press *Edit*, then press *Instrument*.**

  This puts you on the EDIT/Instrument Page where you will set the characteristics of your new Instrument.
- **Scroll left (or right) until the Display shows:**

  The parameter "SEND KEYS TO = " determines whether the Instrument will play:
  - Only Locally (LOCAL);
  - Only over MIDI (MIDI); or
  - Locally and over MIDI (BOTH).



INST STOP

EDIT

SEND KEYS TO = BOTH

- **Set to "SEND KEYS TO = MIDI."**

  Now the instrument will *only* play over MIDI, sending keys, controllers, etc. on its designated MIDI Channel.
- **Scroll left to the parameter "MIDI OUT CHANNEL = __"**

  This is the MIDI Channel that the Instrument will send on. Let's suppose that the ESQ-1 in our example is set to receive on MIDI Channel 3. We would set this parameter to "MIDI OUT CHANNEL= 3." Now selecting and playing this Instrument should play the ESQ-1.
- **Name the new Instrument.**

  Scroll left until the Display shows "NAME = UNNAMED INST," and edit the Instrument's Name (as detailed on p. 21). Give the new Instrument a name which describes it. In this case, we might name it "ESQ - CHAN 3."

- **Press *Load* to return to LOAD Mode, and select the MIDI Instrument.**

  The Instrument's Name and Volume level show on the Display, like any other EPS Instrument. When you play it from the EPS keyboard you should hear the ESQ-1.
  - You can select, deselect or stack the MIDI Instrument as you would a local Instrument;
  - You can change its Keyboard Range so it only plays over a specified part of the keyboard;
  - Changing its Volume (by moving the Data Entry Slider) will send MIDI Volume changes to the receiving instrument, letting you mix its level just as you would a local Instrument.
- **Save the new Instrument to disk.**

Save the Instrument to a formatted disk (as described on p. 20). You can later load it into any of the eight Instrument•Track locations and play the ESQ-1 just as you would load and play a sampled Instrument.

Create customized MIDI-only EPS Instruments for each of your remote devices. Then Load them into memory for playing and sequencing specific external instruments. Just remember to follow these rules:

- The "Smart MIDI Out" Switch on the EDIT/MIDI Page must be set to "TRANSMIT ON = INST CHAN."
- Each external device for which you create a MIDI Instrument should *always* be set to receive in POLY (or MULTI) mode, OMNI OFF, and always on the same MIDI Channel that you assigned to the related EPS MIDI Instrument.
- Make sure that any EPS Instruments which you *don't* want sending notes out MIDI (such as most sampled Instruments) are assigned to "SEND KEYS TO = LOCAL." Then save the Instrument(s) to disk.

MIDI IN MODE

The MIDI IN Mode determines how MIDI information will be received over MIDI by the EPS and its various Instruments. The MIDI Mode has no effect on what is sent — MIDI Out on the EPS is totally independent from MIDI In.

To set the MIDI IN Mode:

- Press *Edit*, them Press *MIDI*. Scroll right until the screen shows "MIDI IN MODE=__"

There are five MIDI Modes which can be selected here (though two of them, MONO A and MONO B, are variations on the same idea).

- MIDI IN MODE= OMNI — In OMNI Mode the EPS will receive and respond to any enabled MIDI data received on any of the sixteen MIDI channels.

- MIDI IN MODE= POLY — In POLY Mode the EPS will receive only on the Base MIDI Channel (also selected on the EDIT/MIDI Page). MIDI information on all other channels will be ignored.

- MIDI IN MODE= MULTI — MULTI Mode is an ENSONIQ innovation which was specially designed to make optimal use of the multi-timbral capabilities of our instruments. In MULTI Mode the EPS's eight Instruments can each receive MIDI information independently and polyphonically on a different MIDI Channel.

Instrument #1 will receive on the Base MIDI Channel. Instrument #2 will receive on the Base MIDI Channel plus 1; Instrument #3 will receive on the Base MIDI Channel plus 2; and so on.

Instrument MIDI Channel assignments in MULTI and MONO B Modes:

If the Base Channel is:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Inst #1 receives on:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Inst #2 receives on:	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	—
Inst #3 receives on:	3	4	5	6	7	8	9	10	11	12	13	14	15	16	—	—
Inst #4 receives on:	4	5	6	7	8	9	10	11	12	13	14	15	16	—	—	—
Inst #5 receives on:	5	6	7	8	9	10	11	12	13	14	15	16	—	—	—	—
Inst #6 receives on:	6	7	8	9	10	11	12	13	14	15	16	—	—	—	—	—
Inst #7 receives on:	7	8	9	10	11	12	13	14	15	16	—	—	—	—	—	—
Inst #8 receives on:	8	9	10	11	12	13	14	15	16	—	—	—	—	—	—	—

- MIDI IN MODE= MONO A or MONO B — MONO Mode is another way of playing different sounds at once via MIDI. It is particularly well suited for driving the EPS from a Guitar Controller, or any other application where having up to eight independent, monophonic, Channels is desirable.

The EPS offers two types of MONO Mode. In both types of MONO Mode the EPS will receive monophonically on eight consecutive MIDI Channels. The difference has to do with how those eight MIDI Channels are routed within the EPS.

MONO A — When MONO A is selected the EPS receives monophonically on eight consecutive MIDI Channels — the Base Channel through Base Channel+7. All notes and controllers received will play whatever Instruments are selected or stacked for the note that is played, just as if the note was played from the keyboard.

MONO B — In MONO B Mode the eight independent monophonic MIDI Channels are sent to the eight Instruments of the EPS. MIDI Channel assignments are the same as in MULTI Mode (see the chart above). Using this MIDI In Mode you could, for instance, have each string of a guitar play a different Instrument within the EPS.

In MONO Mode (A or B) the Base Channel Minus One becomes a MIDI Channel for global Controllers (Pitch bend, Pressure, MOD Wheel, etc.). For example, if the Base Channel is Chan. 3, any Controllers received on Chan. 2 will affect *all* voices being played. If the Base Channel is Chan. 1, Chan. 16 becomes the Channel for global Controllers.

MIDI PROGRAM CHANGES

The EPS can transmit and receive MIDI Program changes. There is a parameter on the EDIT/MIDI Page which enables the EPS to do so. This parameter must be set to "MIDI PROG CHANGE=ON" – otherwise the EPS will not send or receive Program Changes.

To send a Program Change from the EPS:

- Hold down an Instrument•Track button.
- *While holding down the Instrument•Track button,* "type in" the number (from 1-128) of the desired Program Change on the numeric keypad buttons of the EPS; then
- Release the Instrument•Track button. When the button is released, the Program change is sent.

If the EPS has been set to "TRANSMIT ON= INST CHAN," (EDIT/MIDI Page) the Program Change will be sent on the MIDI Channel of the Instrument whose button you held down while typing in the number. If it is set to "TRANSMIT ON= BASE CHAN," the Program Change will always be sent on the Base Channel.

Receiving Program Changes

What the EPS does when it receives a Program change depends on the current MIDI In MODE (on the EDIT/MIDI Page).

If the MIDI IN MODE = OMNI, POLY or MONO A, incoming Program Changes 1-24 will *Select*, *Deselect* or *Stack* the eight Instrument•Tracks of the EPS in the following fashion:

- Program Changes 1-8 will *Select* EPS Instruments 1-8 (yellow LED will light), if received by an instrument which is not selected.
- Program Changes 1-8 will *Deselect* Instruments 1-8 (yellow LED will go out), if received by an instrument which is already selected.
- Program Changes 9-16 will *Stack* Instruments 1-8 (yellow LED will flash).
- Also, Program Changes 17-24 will select Performance Presets 1-8 (see p. 17).

If the MIDI IN MODE = MULTI or MONO B, incoming Program Changes are used to load Instruments into Instrument•Track locations and to enter and exit directories. To load a given file into an Instrument•Track location you send the EPS a Program Change which is the **file number +1**.

Program Change 1 has a special function, which is to EXIT TO the previous directory.

USING THE SEQUENCER

The EPS's built-in digital Sequence Recorder (or Sequencer) makes it much more than just a sampler. The EPS Sequencer contains the kind of power and features you would expect to find in stand-alone or computer-based sequencers, but being integrated with a keyboard controller makes it much more intuitive and easy to use. You will soon find that your EPS functions quite effectively as a "tapeless studio." Unlike tape recorders, which record the actual sounds made by instruments, a Sequencer records the "control signals" — the same key-down, key-up, velocity, and controller information sent and received over MIDI. So every time you play back a sequence it is a first-generation performance. *The EPS Sequencer will not record in MULTI or MONO B Modes.*

MEMORY

- Sequencer memory is shared with sample memory — the more (and bigger) the Instruments in memory the less Sequences you will be able to load or record. And vice versa.
- Each Block (256 Words) of Internal Memory represents about 80 notes of Sequencer data (not counting controllers, such as the Wheels and Pressure, which will use memory much more quickly).

SEQUENCES

- The EPS can have up to 80 Sequences in its Internal Memory at once. Each Sequence has a 12-character name, which you give to it when you create it. A Sequence can be up to 999 bars long.
- You select the current Sequence (which Sequence you want to play or record) on the EDIT/Seq•Song Page. Press *Edit*, then double-click on *Seq•Song* to go directly to the "select Seq/Song" screen.
- You can save an individual Sequence to disk, though in most cases it is more useful to save the entire Song with all its related Sequences.

TRACKS

- Each Sequence is composed of up to eight Tracks, which correspond to the eight Instrument•Track locations. That is, each Instrument location also doubles as a Track. Whatever is recorded on a given Track will play on the Instrument that is loaded into that Instrument•Track location.
- You can only Record on one Track at a time. All Sequence recording is done in EDIT Mode, and in EDIT Mode you can only select one Instrument•Track at a time.
- You "mix down" Sequences on the EDIT/Track Page. From the two screens on this Page you can play, mute or solo each Track; you can also adjust the Mix level and the Pan setting of each Track. (Mix and Pan for each Track are remembered when you save a BANK.)

SONGS

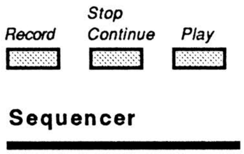
- The Sequences in memory can be chained together into a Song. There can only be one Song in memory at a time. The Song also has a 12-character name which you can edit.
- The Song is selected on the EDIT/Seq•Song Page just as you would select a Sequence. When the Song is selected, the SONG indicator lights on the Display.
- After chaining together Sequences into a Song, you can record another complete set of Song-length Tracks which are separate from the individual Sequence Tracks, but which share the same Instruments. These Song Tracks are stored with the Song. This makes the EPS Sequencer in effect a sixteen-track recorder.
- When you save a Song to disk (using the "SAVE SONG + ALL SEQS" command on the COMMAND/Seq•Song Page), the EPS automatically saves all the Sequences currently in memory along with the Song (it doesn't save the Instruments, though: they must be saved separately). When you later Load the Song into memory (by itself or as part of a Bank), all the Sequences will be loaded in along with it.

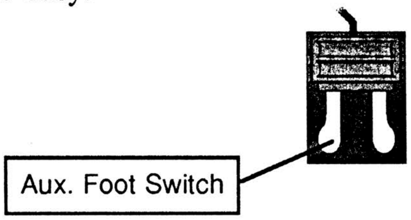
BANKS

- The way to make sure that all the Instruments are loaded into the proper locations, and that all the Mix and Pan levels for each Track are properly preserved is to save the whole contents of the EPS memory as a Bank (see p. 21). Loading a Bank file (instead of Loading the Song and the various Instruments separately) ensures that every Instrument will be loaded into the the proper Instrument•Track location so that the Tracks are all playing the right thing.

SEQUENCER "TRANSPORT CONTROLS"

The three yellow buttons to the right of the Display serve to Start and Stop the Sequencer, and to put it into Record and Overdub modes. In addition to these three buttons, the Auxiliary Foot Switch (available only when an optional SW-5 dual-pedal Foot Switch is connected to the EPS) can be used to start and stop the Sequencer when both hands are busy.





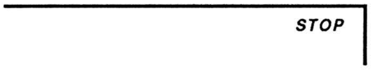
- **Pressing *Play*** will start the current Sequence or the Song (whichever is selected) playing from the beginning.
- **Pressing *Stop/Continue*** will stop the Sequencer (if pressed while it is running); or will play the current Sequence or the Song from wherever it was last stopped (if pressed while the Sequencer is stopped).
- **The Auxiliary Foot Switch** will duplicate the behavior of the *Stop/Continue* button.

- **Pressing *Play* while holding down *Record*** will start the Sequencer recording on the current Track from the beginning of the Sequence or Song.
- **Pressing *Stop/Continue* while holding down *Record*** will start the Sequencer recording on the current Track from wherever it was last stopped.

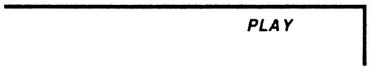
- **Pressing *Record* while the Sequencer is playing** will put the Sequencer into "Punch in" Mode. It will wait for you to start playing before going into Record on the current Track.

SEQUENCER STATUS

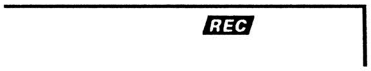
The Sequencer is always in one of the following states; the Sequencer Status Indicators in the upper-right part of the Display always tell you what the current status is:



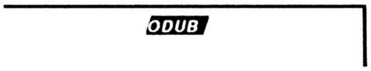
- **STOP — Sequencer at rest**



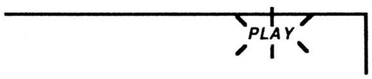
- **PLAY — Playing current Sequence or the Song**



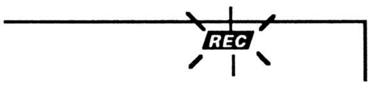
- **REC — Recording on current Track, first pass**



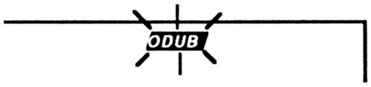
- **ODUB — Overdub: Re-recording current Track**



- **PLAY (flashing) — Countoff playing prior to going into Play, Record or Overdub**



- **REC (flashing) — Record Standby: waiting for you to play before going into Record (first Track only)**



- **ODUB (flashing) — "Punch-in" Standby: waiting for you to play before going into Overdub**

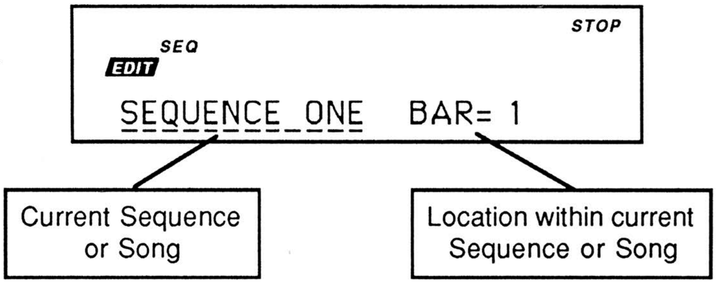
The EDIT/Seq•Song Page

- **Press *Edit*, then *Seq•Song*.**

  This puts you on the EDIT/Seq•Song Page, which is your main base of operations for selecting, adjusting and recording sequences.

- **Double-click on the *Seq•Song* button. The Display shows:**

  This screen is where you select a Sequence or the Song. With the selected Seq/Song underlined (as shown at the right) use the Up and Down Arrow Buttons or the Data Entry Slider to select a different Sequence or the Song. You can always get back to here by double-clicking the Seq•Song button (when in EDIT Mode)



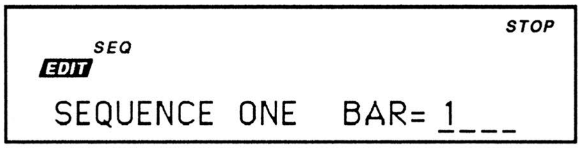
SEQUENCE_ONE BAR= 1

Current Sequence or Song

Location within current Sequence or Song

- **Press the Right Arrow button to move the cursor to the Bar Number.**

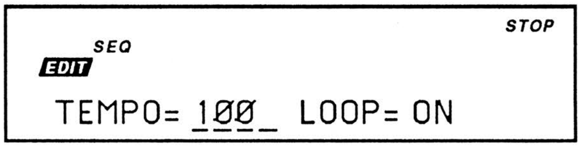
  This shows the current location in the selected Sequence or Song. When the cursor is under the Bar (or Step) Number you can GOTO any location by moving the Data Entry Slider to select a new location, then pressing Enter.



SEQUENCE ONE BAR= 1___

- **Press the Right Arrow button again to show the following parameters:**

  Here you can adjust:
  - The Tempo of the Sequence in beats-per-minute; and
  - The Loop setting — when On, the Sequence will repeat continuously; when Off it will play through once and stop.



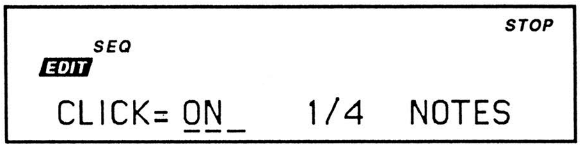
TEMPO= 100_ LOOP= ON

- **Press the Right Arrow button again.**

  The next parameter on this page is the Clock Source. There are two possible choices: When set to "CLOCK SOURCE=INTERNAL" the EPS will use its own internal Clock. Set to "CLOCK SOURCE=MIDI" the EPS will sync to incoming MIDI clocks from a remote device.

- **Press the Right Arrow button until the following appears:**

  These two parameters control:
  - The setting of the CLICK Track (metronome) On or Off; and
  - The interval at which the Click will play. In the example to the right, the Click will play on each Quarter note.



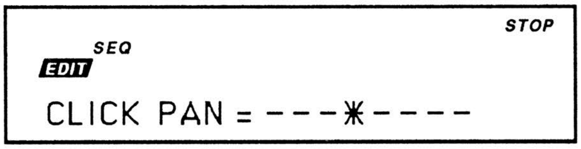
CLICK= ON_ 1/4 NOTES

- **Press the Right Arrow button to scroll to CLICK VOLUME.**

  The volume of the Click track is adjustable from 0 to 99.

- **Press the Right Arrow button to see the Click Pan parameter:**

  Use the Data Entry Slider or the Up and Down Arrow buttons to pan the Click Track within the stereo spread (the Star represents the Pan Location) or send it to one of the eight Solo Outputs (with the optional OEX-8 Output Expander box.)



CLICK PAN = ---✻----

- **Press the Right Arrow button to scroll to the COUNTOFF Setting.**

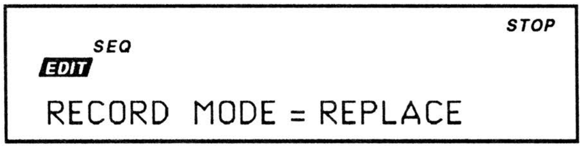
When "SEQ COUNTOFF=OFF," the Song or Sequence will start playing or recording as soon as you press *Play* or *Record/Play*.

When "SEQ COUNTOFF=QUIET," there is a *silent* one-bar count before the Sequencer starts.

When "SEQ COUNTOFF=CLICK," you will hear one bar of Click Track before the Sequencer goes into Play or Record.

- **There is one more control on this Page:**

The RECORD MODE determines how data will be recorded by the EPS Sequencer when you enter Record. Use the Data Entry Slider or the Up and Down Arrow buttons to choose between the following options:



RECORD MODE = REPLACE

- RECORD MODE=REPLACE — Anything recorded into an existing Track will replace data that was in the Track previously. The Sequencer will stop Recording after one time through the Sequence or Song and will enter Audition/Play Mode.
- RECORD MODE=ADD — New data recorded into an existing Track will be added to (or merged with) data already in the Track — the existing data will be left intact. Again, the Sequencer will exit Record after one time through the Sequence or Song and enter Audition/Play.
- RECORD MODE=LOOPED — As with ADD Mode, new data recorded into an existing Track will be added to (or merged with) data already in the Track. However, when "RECORD MODE=LOOPED," the Sequencer will remain in Record for as many times as you play the Song or Sequence through (rather than dropping out of Record after one time through). Think of this as "Drum Machine mode" — as long as the Sequence or Song keeps playing you can keep adding parts each time around.

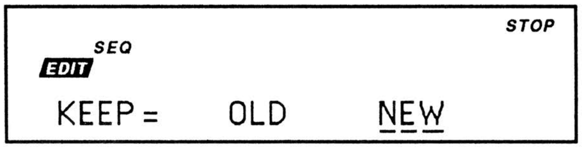
- **Pressing the Right Arrow button again takes you back to the first screen we saw, showing the current Sequence (or Song) and location.**

RECORDING A SEQUENCE

- **CREATE A NEW SEQUENCE:**
  - Press *Command*, then Double-click on *Seq•Song*. The Display shows "CREATE NEW SEQUENCE".
  - Press *Enter*. The Display will show "NEW NAME= SEQUENCE 02" (or 03, 04, etc.). There is a cursor beneath the first character. You can now give the Sequence a name of your choosing, or use the default name by skipping the next step.
  - Name the new Sequence, using the Data Entry Slider or the Up and Down Arrow buttons to change the character, and then pressing the Left or Right Arrow button to move the cursor to the next character. Continue this until the Display shows the name you want.
  - Press *Enter*.
  - Select the Time Signature for the new Sequence (or, if the Time Signature that's showing is the one you want, just press *Enter* twice). The Time Signature for the Sequence is set at this time and cannot be changed later. Adjust the top half of the fraction, then scroll right to select the bottom half of the fraction and adjust that.
  - Press *Enter*. The new Sequence is created and becomes the currently selected Sequence.

- **RECORD THE FIRST TRACK:**
- **Select a Track.**
  Select any loaded Instrument by pressing its Instrument button. This makes it the current Track.
- **While holding down *Record,* press *Play.***
  The EPS immediately puts you on the EDIT/Seq•Song Page (described earlier) and the Click track starts playing (assuming CLICK=ON), giving the tempo. The first beat of each measure is emphasized.
- **Adjust the Tempo.**
  Press the Right Arrow button twice to scroll to the TEMPO parameter. Adjust it to the tempo you want with the Data Entry Slider.
- **Play the keyboard to commence Recording.**
  The bar in which you start playing becomes Bar 1 of the Sequence.
- **Press Stop to end Recording.**
  The Display will say "XXX BARS - KEEP TRACK?" The length (in bars) of the first Track determines the length of the Sequence.
- **Press *Enter•Yes* to keep the Track, defining the length of the Sequence, or**
- **Press *Cancel•No* to erase the first Track and start over again.**

- **RECORD ANOTHER TRACK:**
- **Select a different Track.**
  Again, selecting any loaded Instrument by pressing its Instrument button makes it the current Track. Or you can leave the original Instrument•Track selected and Overdub (re-record) that Track.
- **While holding down *Record,* press *Play.***
  After a one Bar Countoff (if "COUNTOFF=CLICK") the EPS goes into Record and will record what you play on the selected Track.
- **Press Stop. The Display shows:**



KEEP = OLD NEW

This is called the "PLAY/KEEP" Page.
• When NEW is underlined, pressing Play will play the NEW Track, and pressing Enter will Keep it, erasing the original.
• When OLD is underlined, pressing Play will play the ORIGINAL Track, and pressing Enter will Keep it

While playing the Sequence, press the Left or Right Arrow buttons to move the Cursor between OLD and NEW to hear the original Track or the new Track.

- **With NEW underlined, press *Enter•Yes* to KEEP the new Track.**
  Or press *Cancel•No* to keep the original. Note that on this Page, pressing *Cancel•No* will *always* Keep the Old Track.

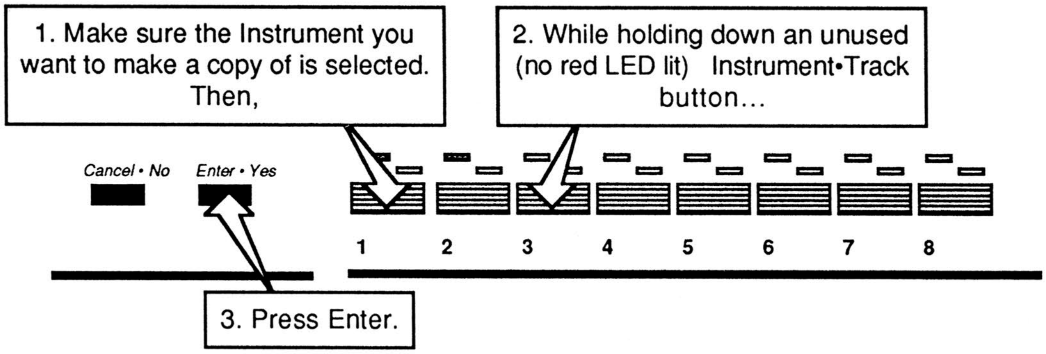
- **"PUNCHING IN" ON A TRACK:**
  Suppose you have a Track which is fine for the first four bars but the next four bars need to be redone. You can "Punch In" at any point in the Track by doing the following:
- **Select the Track you want to record on.**
- **Press *Play* to start the Sequence or Song playing.**
- **Press *Record.***
  This puts the EPS in Overdub Standby — the ODUB Indicator flashes on the Display and the Sequencer is waiting for you to play keys before going into Record.
- **Start playing at the point where you want to punch in.**
  As soon as you play anything the EPS goes into Overdub (or Record for a new Track) and records what you play, leaving intact the part of the Track before the punch in.
- **Press *Stop.***
  You will see the PLAY/KEEP Page as shown above, letting you audition the new or the old Track before deciding which to keep.

RECORDING ANOTHER TRACK WITH A COPY OF THE SAME INSTRUMENT

You will sometimes find that you want to record a second Track using the same Instrument. There is a quick way to make a "working copy" of any EPS Instrument in an unused location without copying the sample data (thus conserving memory).

Suppose, for example, that you have recorded a Track with a Piano sound on Track 1. Now you want to record another Track with the same sound, but with independent controllers, Mix level, Pan, etc. You can copy the Piano into any empty Instrument•Track location (let's say Track 3) with these three steps:

To Copy an Instrument to Another location:



1. Make sure the Instrument you want to make a copy of is selected. Then,

2. While holding down an unused (no red LED lit) Instrument•Track button...

3. Press Enter.

The Display will read "PIANO COPIED." Instrument•Track location #3 now contains a copy of the Piano in location #1. You can now record on this Track just as you would any other. Keys, controllers, etc. recorded on the new Track will be independent from any recorded on Track #1. You can Solo, Mute, Mix and Pan the new Track independently from the original. The two Tracks simply "point to" the same Sound. You can make as many copies of an Instrument as you want.

Additional Notes:

- When you select an Instrument•Track location which contains a copy, it looks just like the original — the name will be the same. In LOAD Mode you can adjust the Volume of a copied Instrument, select, deselect and stack it as you would any Instrument.
- These copied Instruments are temporary things — the Song or Sequence doesn't know that it's playing a copy (in fact the Song or Sequence never knows what Instruments are loaded into which locations). Any copied Instruments will be forgotten when the EPS is turned off unless you save the contents of memory as a Bank (using the SAVE BANK command on the COMMAND/Instrument Page). When you load Bank, the EPS recreates any copied Instruments which were there when the Bank was saved.
- You can not edit the Instrument, Layer or Wavesample parameters of the copy independently. Any parameter changes made to the copy will affect the original, and vice-versa.
- If you load a new Instrument into the Instrument•Track location which contains the original Instrument, any copies of that Instrument will automatically be deleted from memory.

SEQUENCING REMOTE DEVICES OVER MIDI

You can sequence any remote device exactly as you would a local EPS Instrument:

- On the EDIT/MIDI Page, set MIDI IN MODE = POLY, and make sure the "Smart MIDI Out" parameter is set to "TRANSMIT ON = INST CHAN."
- Create a MIDI Instrument as shown on p. 30, and assign the MIDI Instrument to send on the MIDI Channel of the remote device you want to Sequence from this Track.
- Now select the MIDI Instrument and proceed with recording the Track just as you would any other Track. All keys, controllers and Program changes you record will be sent out MIDI to the remote device. You can Mix, Mute and Solo these MIDI Tracks on the EDIT/Track Page.

"MIXING DOWN" A SEQUENCE

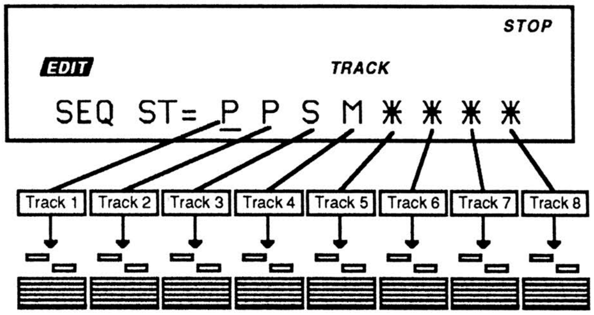
Once you have a Sequence or Song recorded, you can "mix" the Tracks from the EDIT/Track Page.

• Press *Edit*, then *Track*.

This takes you to the EDIT/Track Page which is used to adjust the levels and Pan locations of the Tracks. The EDIT/Track Page consists of only two screens (three when the Song is selected). Press the Left or Right Arrow button until the following screen appears:

The Display shows the Status of each Track:

- "P" means PLAY – Tracks which show a "P" will play normally.
- "S" means SOLO – Selecting "S" for any Track will "solo" the track, muting all the others.
- "M" means MUTE – Selecting "M" for a Track will silence that track.
- A "Star" indicates that nothing has yet been recorded on the Track – no Track data. In the illustration, Tracks 5, 6, 7 and 8 have not yet been recorded.



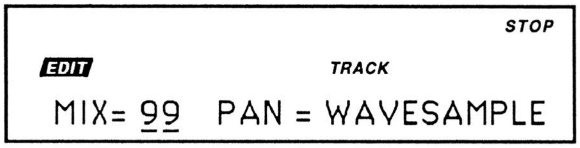
• The Cursor (underline) tells you which Track is selected. To select a different Track, press its Instrument•Track button. The underline will move to the new Track.

• You can select any of the Tracks which contain recorded data and use the Up and Down Arrow buttons to select PLAY, SOLO or MUTE status for each.

• Now press the Right Arrow button. The Display shows:

This screen shows you the Mix (or volume level) and the Pan setting for the current Track.

- The MIX level corresponds to the Instrument Volume setting in LOAD Mode. Changing one will change the other.

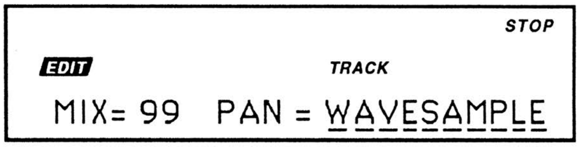


MIX= 99 PAN = WAVESAMPLE

- To adjust the mix of different Tracks, select different Tracks by pressing their Instrument•Track buttons, and then use the Data Entry Slider or the Up and Down Arrow buttons to change the Track's level.

• Press the Right Arrow button to move the underline to the Pan Setting.

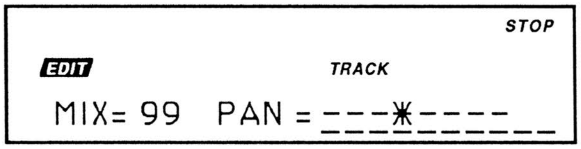
This lets you, if you wish, pan the Track to a spot in the Stereo mix, or assign it to one of the Solo Outputs (with the optional OEX-8 Output Expander) overriding the Pan instructions which are built into each Wavesample of the Instrument.



MIX= 99 PAN = WAVESAMPLE

When PAN=WAVESAMPLE, the Track pan will behave according to whatever is programmed for each Wavesample of the Instrument.

By moving the Data Entry Slider or the Up and Down Arrow buttons you can select any of the eight Pan locations within the stereo spread. The Star represents the Pan location; you will see it move right or left as you press the Up or Down Arrow button.



MIX= 99 PAN = ---*----

Or, continue pressing the Up Arrow button to assign the Track to SOLO OUT 1 - SOLO OUT 8 for individual outputs (with the OEX-8 Output Expander).

Note that MIX and PAN settings for a given set of Tracks will *only* be remembered if you save the contents of memory as a Bank (see p. 21).

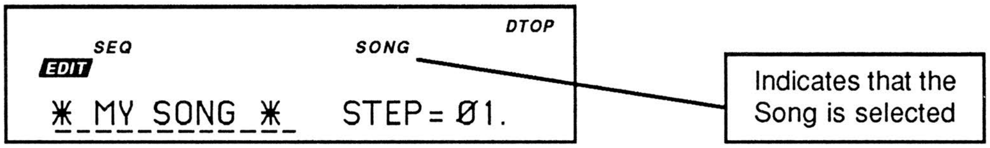
SONG MODE

The EPS's Song mode allows you to chain individual Sequences together to form a Song. Since each Sequence has a fixed length, tempo and time signature, you can use the Song mode to create works with tempo and time signature changes. However, Song Mode on the EPS lets you do much more than just play Sequences in order.

First, for each Step of the Song you can selectively Mute or Transpose any of the Tracks in the Sequence. And second...

You can Record in Song Mode. An EPS song offers you another set of Tracks, called Song Tracks, which let you record over the entire length of the Song. The information recorded in these Song Tracks is separate from information in the Tracks of the individual Sequences which comprise the Song. However, each Song Track *does* "share" an Instrument with the same-numbered Sequence Track. You will find more details about Song Tracks later. First, here are a few basic truths about EPS Song Mode:

• There is only one Song in the EPS at a time. Whenever the Song is selected, (as opposed to one of the Sequences) the SONG indicator lights on the Display:



Indicates that the Song is selected

The SONG Indicator remains lit as long as the Song is selected, no matter what Mode the EPS is in or Page it is on. Whenever the SONG Indicator is *not* lit, an individual Sequence is selected.

• You select the Song in the same way that you select Sequences, on the EDIT/Seq•Song Page (press *Edit*, then double-click on *Seq•Song*).

• Songs are composed of *Steps*. For each Step of the Song, you define:

1. Which Sequence will play during that Step;
2. The number of Repititions – how many times the Sequence will play during the Step;
3. The Status (Play, Mute or Transpose) of each Track of the Sequemce during the Step; and
4. The Transpose amount, which determines how far any Transposed Tracks in that Step will be shifted up or down in pitch.

A Song can contain as many as 99 Steps, with up to 63 repetitions of each Step.

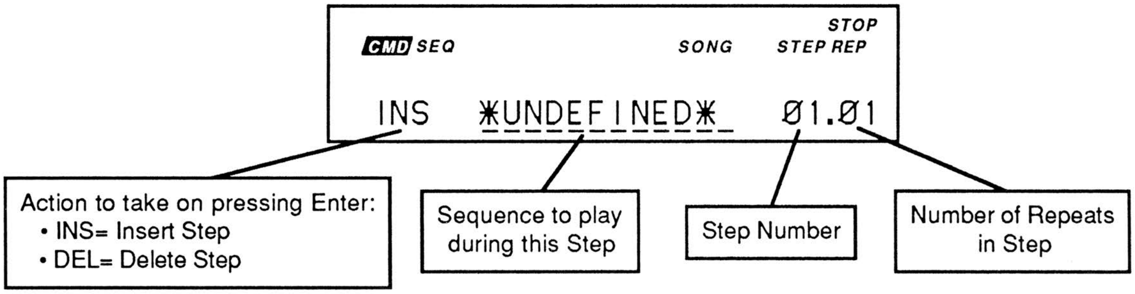
•Typically, putting together an EPS Song will involve the following steps:

1. Record (or load from disk) the various Sequences which you want to combine to form the Song.
2. Construct the Song, using the EDIT SONG STEPS command on the COMMAND/Seq•Song Page (you will learn how to do that next).
3. Record any Song Tracks.
4. Save the Song (along with its component Sequences) using the SAVE SONG + ALL SEQS command on the COMMAND/Seq•Song Page.
5. As a final step, it's always a good idea to save the contents of memory as a Bank, so that you can later load the Song and load all the Instruments into the proper locations, just by loading the Bank.

MAKING A SONG

Once you have recorded a number of Sequences which you want to chain together into a Song:

- Press *Command*, then *Seq•Song*.
- Press the Left or Right Arrow buttons until the Display shows "EDIT SONG STEPS."
- Press*Enter*. The Song Edit Page appears:

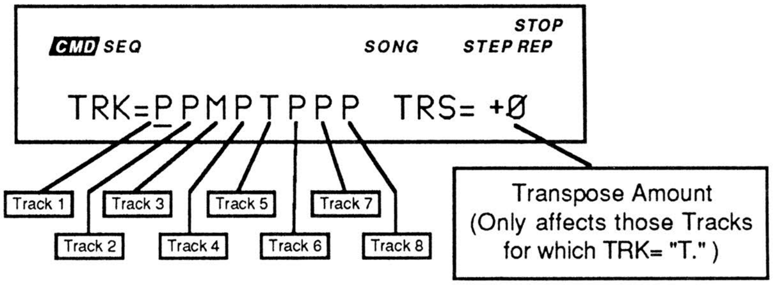

CMD SEQ
SONG
STOP
STEP REP
INS *UNDEFINED* 01.01
Action to take on pressing Enter:
• INS= Insert Step
• DEL= Delete Step
Sequence to play during this Step
Step Number
Number of Repeats in Step

There are four things which can be selected (underlined) on this screen:

- On the left you can choose INS (Insert Step) or DEL (Delete Step). This is normally set to INS, for inserting new steps into your Song (see below for deleting Steps).
- In the middle of the screen you choose which Sequence will play for this Song Step. This space currently reads "*UNDEFINED*," as shown above, because no Steps have yet been defined for the Song.
- To the right of the Display you see the Step number (which in the case of a new Song will be Step 1) and the number of Repeats (or Reps) for that Step.

For each Song Step you want to create:

- Move the cursor (if it's not already there) to underline the Sequence Name, which currently reads *UNDEFINED*.
- Press the Up or Down Arrow button to select among the Sequences in memory until the Display is showing the name of the Sequence you want to play during that step.
- Scroll right to move the cursor to the number of Repeats (REP), and adjust the number number of times you want the Sequence to play during the Step. (If you only want the Sequence to play once during the Song Step, leave it set to 01.)
- Press the Right Arrow button again to reveal the following Display:

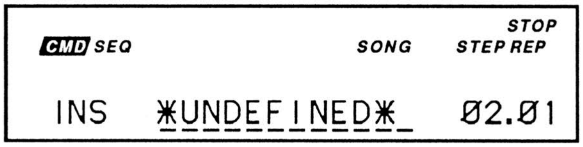

CMD SEQ
SONG
STOP
STEP REP
TRK=PPMPTPPP TRS= +0
Track 1
Track 2
Track 3
Track 4
Track 5
Track 6
Track 7
Track 8
Transpose Amount
(Only affects those Tracks for which TRK= "T.")

Here, for each Step of the Song, you can select Play, Mute or Transpose status for each Track of the Sequence.
• "P" means PLAY – Tracks which show a "P" will play normally.
• "M" means MUTE – Selecting "M" for a Track will silence that track during the Song Step.
• "T" means TRANSPOSE – Tracks which show a "T" will be Transposed up or down, by the amount shown to the right, for the duration of the Step.

- If you want to Mute or Transpose any of the Tracks during that Step, scroll until that Track is underlined, and use the Up or Down Arrow button to select "M" (Mute) or "T" (Transpose) for that Track.
- If you have selected "T" to Transpose any of the Tracks during the Song Step, scroll right to underline the Transpose Amount. This can be adjusted in one-semitone steps from -12 (down one octave) to +12 (up one octave). This control will only affect Tracks for which a "T" has been chosen at the right. Conversely, if you choose "T" status for one or more Tracks but leave the Transpose Amount set at zero, it will have no effect.
- Press the Left or Right Arrow button to return to the first screen shown above.

- Once the Sequence and number of Reps is correct, press *Enter•Yes* to create Step One of the Song. The Display will briefly reads "EDITING..." then comes back with Step 2 showing:

Now you repeat the above procedure to define Step 2 of the Song.


CMD SEQ SONG STOP STEP REP

INS *UNDEFINED* 02.01

For each Step, choose a Sequence and a number of Repeats and then press *Enter•Yes* to create the Step.

- There is always one *UNDEFINED* step *after* the last step in the Song.

To go to a different Step in the Song:

Move the cursor to underline the Step Number, and use the Up or Down Arrow buttons to go to any Step within the Song. After you have finished editing the Song Steps (or at any point during the process, for that matter) you can go back through the Song to check that all the Steps are right.

To change anything in an existing Song Step:

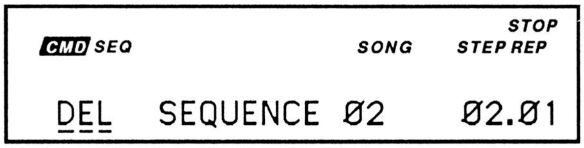
To change any of the variables (Sequence to play, number of Reps, Track Mute or Transpose) within a Song Step which has already been created, simply go to that Step, as described above, select the thing you want to change and change it. You don't have to press *Enter* to make the changes real. You only have to press *Enter* to actually Insert or Delete a Step.

To Insert a Step anywhere in the Song:

- Go to the Step *before which* you want to insert the Step. That is, if you want to insert a Step between Step 2 and Step 3, go to Step 3.
- Move the Cursor to underline the Sequence name.
- Use the Up and Down Arrow buttons to select the Sequence you want to play for the new Step.
- Set the number of Repeats and any Mute or Transpose settings for the Step as shown earlier.
- Press *Enter*. The new Step is inserted. If, as in the example above, you go to Step 3 and insert a Step, the Step you inserted becomes the new Step 3. What was Step 3 becomes Step 4, and so on.

To Delete a Step anywhere in the Song:

- Go to the Step which you want to delete.
- Move the Cursor to underline "INS" at the left of the Display.
- Press the Up Arrow button to change INS (Insert) to DEL (Delete).

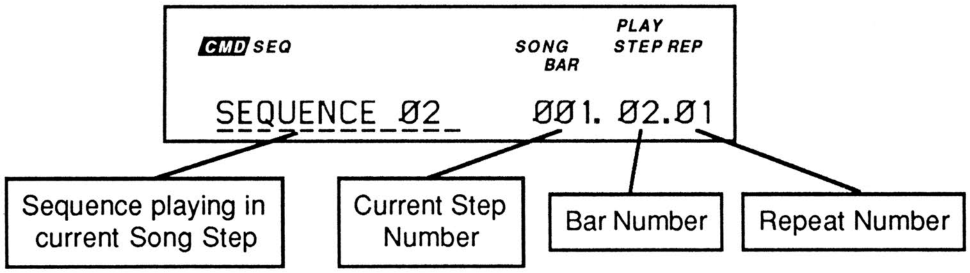

CMD SEQ SONG STOP STEP REP

DEL SEQUENCE 02 02.01

- Press *Enter*. The Step which was showing is deleted.

When you are through editing the Song, press *Cancel•No* to exit Song Edit.

Press *Edit* and then double-click on *Seq•Song* to go the Sequence/Song Select screen. You will see that the Song is selected. Press *Play* to play the Song. When playing back a Song from this page, the Display shows:


CMD SEQ SONG BAR PLAY STEP REP

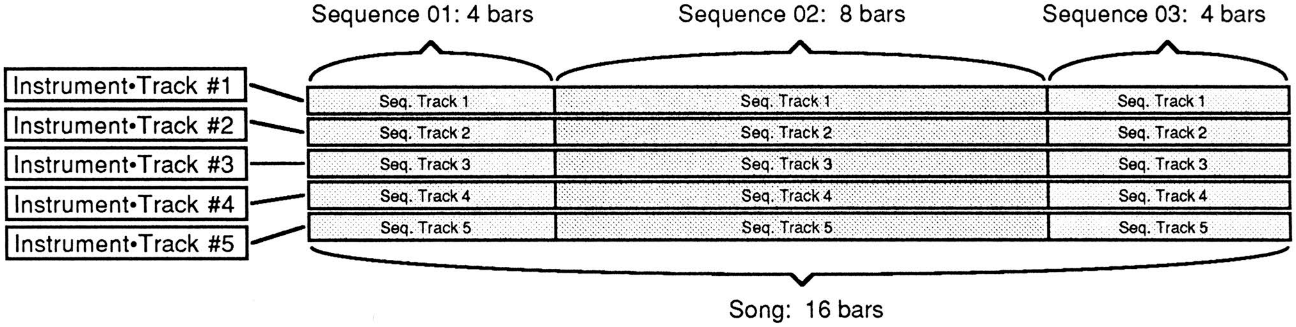
SEQUENCE 02 001. 02.01

RECORDING SONG TRACKS

Let's suppose you have constructed a Song. For our example we will take a simple case:

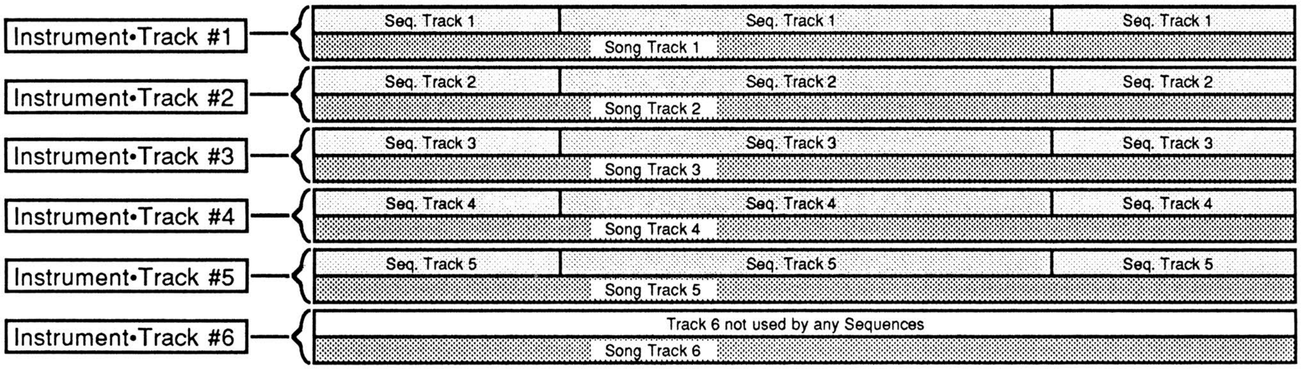
- You have recorded three Sequences, each using five Tracks, and combined them into a Song.
- Step 1 of the Song is Sequence 01 (a 4-bar Sequence) for 1 Repeat;
- Step 2 is Sequence 02 (an 8-bar Sequence) for 1 Repeat; and
- Step 3 is Sequence 03 (a 4-bar Sequence) for 1 Repeat.

Your Song would look like this:


Sequence 01: 4 bars
Sequence 02: 8 bars
Sequence 03: 4 bars
Instrument•Track #1
Instrument•Track #2
Instrument•Track #3
Instrument•Track #4
Instrument•Track #5
Seq. Track 1
Seq. Track 2
Seq. Track 3
Seq. Track 4
Seq. Track 5
Song: 16 bars

Now, with the Song selected, you can enter Record (by holding down *Record* and pressing *Play*) and record a new Song-length Track on any of the five Tracks. Follow the same procedures (as outlined on p. 37) for recording Song Tracks that you would for Sequence Tracks. The only difference is that a Song Track is associated with the Song itself and not with the individual Sequences that comprise the Song.

Continuing with the above example, the Song Tracks might look like this:


Instrument•Track #1
Seq. Track 1
Song Track 1
Instrument•Track #2
Seq. Track 2
Song Track 2
Instrument•Track #3
Seq. Track 3
Song Track 3
Instrument•Track #4
Seq. Track 4
Song Track 4
Instrument•Track #5
Seq. Track 5
Song Track 5
Instrument•Track #6
Track 6 not used by any Sequences
Song Track 6

Any notes and controllers recorded in a Song Track will play the Instrument loaded into that location — Song Tracks "share" the eight Instrument•Track locations with the corresponding Sequence Tracks. Therefore they are not entirely independent. For example Pitch Bends, Sustain Pedal, Pressure and any other controllers recorded into a Song Track will also affect notes recorded on the corresponding Sequence Tracks.

For this reason it is often a good idea to record a Song Track in a location not used by any Sequences, as with Track 6 in the illustration above. You could load a piano sound into Instrument•Track #6 and record a Song Track with that sound which would remain completely independent of any Tracks in the individual Sequences. Or, make a copy of an Instrument into an unused location (as shown on p. 38) and record a Song Track using the copy.

- When the Song is selected, if you go to the EDIT/Track Page you will find a third screen has been added — it looks just like the Track status screen for a Sequence except it says SNG instead of SEQ in the left corner of the Display. This shows you the Status of the Song Tracks. You can select P (play), M (mute), or S (solo) for any of the Song Tracks just as would Sequence Tracks. Note, however, that changing the MIX or PAN of a Song Track will also affect any corresponding Sequencer Tracks.

LOADING AND SAVING EPS SEQUENCER DATA

There are two ways that EPS Sequencer data can be stored on a disk:

- **SONG File**. A Song File contains a Song *and* all its related Sequences. Loading a Song file from disk will completely erase the current contents of the EPS Sequencer memory, replacing whatever is there with the Song and Sequences from the disk file.
- **SINGLE SEQUENCE File.** This type of file contains just one Sequence. Loading a Single Sequence File will *not* erase the Sequencer data already in memory — the new Sequence simply becomes one more Sequence in the Internal memory which can be selected or used as a Step in a Song. There can be up to eighty Sequences in memory at once.

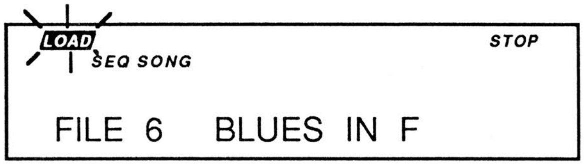
LOADING A SONG OR A SINGLE SEQUENCE FROM DISK

Both types of Sequencer files are accessed from the LOAD/Seq•Song Page.

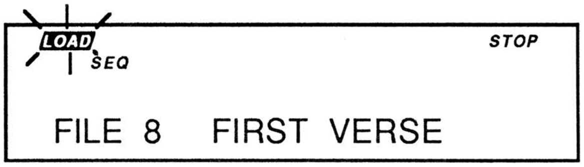
- **Press *Load*, then press *Seq•Song*.**

  The LOAD indicator flashes, meaning that the EPS is showing you disk files.
- **Press the Up or Down Arrow button until the file you want to Load is showing on the Display:**

When a SONG File is showing, the SONG indicator lights next to the SEQ indicator.



When a SINGLE SEQUENCE File is showing, only the SEQ indicator lights.



- **Press *Enter•Yes* to load the Sequencer file showing on the Display.**

  After you have loaded a Song or Sequence, it is automatically selected. Just press *Play* to play it.

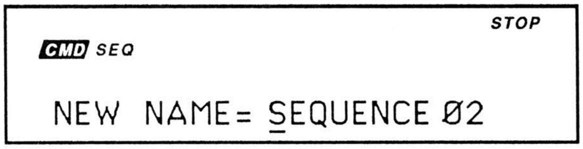
IMPORTANT: Bear in mind that loading a Song or Sequence does not ensure that the right Instruments are loaded into the proper Instrument•Track locations. Each Track of each Sequence will play whatever Instrument is in that location at the time. The way to make sure everything is in the right place is to save the contents of memory (including the Song) as a Bank.

SAVING A SINGLE SEQUENCE TO DISK

Use the SAVE CURRENT SEQUENCE command to save a single Sequence.

- **On the EDIT•Seq•Song Page, select the Sequence you want to save.**
- **Insert a formatted disk into the drive.**
- **Press *Command*, then press *Seq•Song*.**
- **Press the Left or Right Arrow button until the Display reads "SAVE CURRENT SEQUENCE."**
- **Press *Enter•Yes*.**
- **Edit the Sequence Name (if needed):**

The Display shows the current name of the Sequence, with a Cursor (underline) beneath the first character. If you want to give the Sequence a new name, do so at this time.



Use the Data Entry Slider or the Up and Down Arrow buttons to change the underlined character, then press the Left or Right Arrow button to move the underline. Repeat until the Display shows the name you want. (If you don't need to rename the Sequence, just skip this step.)

- **Press *Enter•Yes*.**

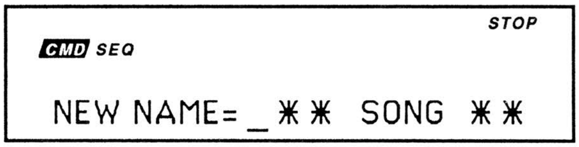
The Display will read "SAVING <FILE NAME>" while the Sequence is being saved.
• If there is already a Sequence file with the same name on the disk, the Display will ask "DELETE OLD VERSION?" Press *Enter•Yes* to save the Sequence, replacing the one on the disk. Or press *Cancel•No* to abort the procedure.
• If there is not enough free space on the disk, the Display will say "NO ROOM ON DISK." Save the Sequence to another disk (or delete some files from the disk).
• If you try to SAVE CURRENT SEQUENCE while the Song is selected, the EPS will not execute the command, responding "USE SAVE SONG + ALL." Again, make sure the Sequence is selected before trying to save it.

SAVING A SONG (ALONG WITH ALL SEQUENCES) TO DISK

Once you have created a Song or made changes to an existing one, you can save the Song to a formatted EPS disk. In addition to saving the Song itself, the SAVE SONG + ALL SEQS command saves all the individual Sequences currently in memory (whether they are involved in the Song or not). To save a Song:

- **Insert a formatted disk into the drive.**
- **Press *Command*, then press *Seq•Song*.**
- **Press the Left or Right Arrow button until the Display reads "SAVE SONG + ALL SEQS."**
- **Press *Enter•Yes*.**
- **Edit the Song Name (if needed):**

The Display shows the current name of the Song, with a Cursor (underline) beneath the first character. If you want to give the Song a new name, do so at this time.



```
NEW NAME= _** SONG **
```

Use the Data Entry Slider or the Up and Down Arrow buttons to change the underlined character, then press the Left or Right Arrow button to move the underline. Repeat until the Display shows the name you want. (If you don't need to rename the Song, just skip this step.)

- **Press *Enter•Yes*.**

The Display will read "SAVING <SONG NAME>" while the Song is being saved.
• If there is already a Song file with the same name on the disk, the Display will ask "DELETE OLD VERSION?" Press *Enter•Yes* to save the Song, replacing the one on the disk. This is for updating Sequencer data to which you have made changes. Or press *Cancel•No* to abort the procedure.
• If there is not enough free space on the disk, the Display will say "NO ROOM ON DISK." Save the Song to another disk (or delete some files from the disk).
• Note that the Song and all Sequences in memory are saved as one file. You cannot later extract a single Sequence from a Song file and load it separately. If you want access to a Sequence individually you must save it using the SAVE CURRENT SEQUENCE command.

DELETING A SONG OR SEQUENCE FILE FROM A DISK

Deleting of disk files is done from LOAD Mode. To Delete (erase) a Sequencer file from a disk:

- **Press *Load*, then press *Seq•Song*.**
- **Press the Up or Down Arrow button until the file you want to Delete is showing on the Display.**
- **While holding down the *Load* button, press *Cancel•No*.**

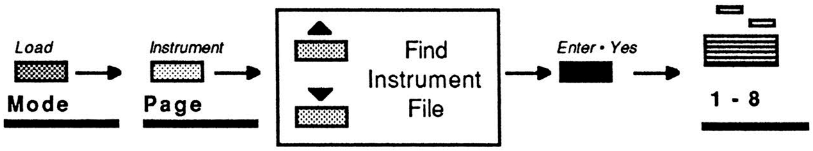
The Display will ask "DELETE <FILE NAME>?"

- **Press *Enter•Yes*.**

EPS FUNCTIONS — QUICK REFERENCE GUIDE

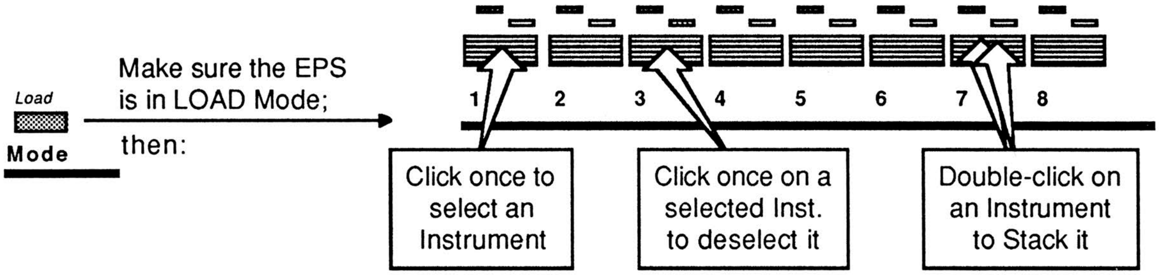
TO LOAD AN INSTRUMENT FROM DISK:

Insert the disk containing the Instrument file into the drive. Then press:

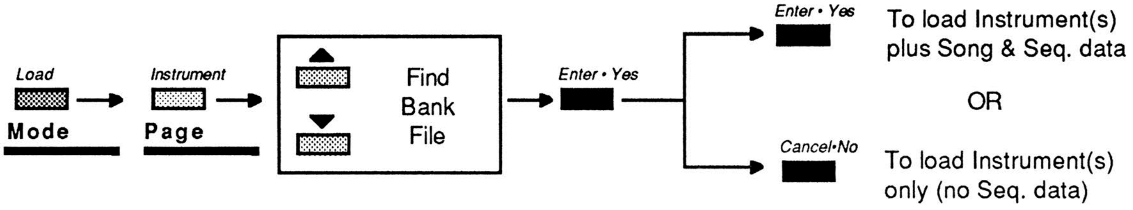

Load
Mode
Instrument
Page
Find Instrument File
Enter • Yes
1 - 8

TO SELECT, DESELECT OR STACK INSTRUMENTS (LOAD MODE):

(In EDIT or COMMAND Mode only one Instrument can be selected at a time.)

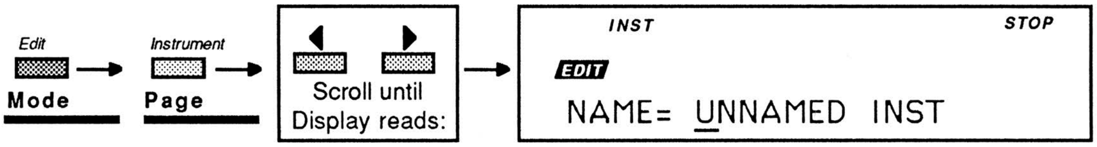

Load
Mode
Make sure the EPS is in LOAD Mode;
then:
1
2
3
4
5
6
7
8
Click once to select an Instrument
Click once on a selected Inst. to deselect it
Double-click on an Instrument to Stack it

TO LOAD A BANK FROM DISK:


Load
Mode
Instrument
Page
Find Bank File
Enter • Yes
Enter • Yes
To load Instrument(s) plus Song & Seq. data
OR
Cancel•No
To load Instrument(s) only (no Seq. data)

TO NAME (OR RENAME) AN INSTRUMENT IN THE INTERNAL MEMORY:

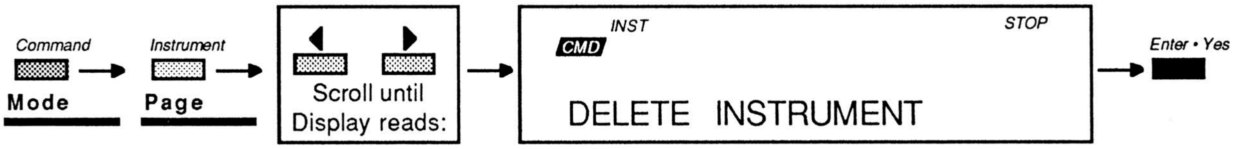
Press:


Edit
Mode
Instrument
Page
Scroll until Display reads:
INST
STOP
EDIT
NAME= UNNAMED INST

Make sure the right Instrument is selected. Edit the Instrument name, using the Data Entry Slider and Up and Down Arrow buttons to change the character, and the Right Arrow button to move the cursor to the next character.

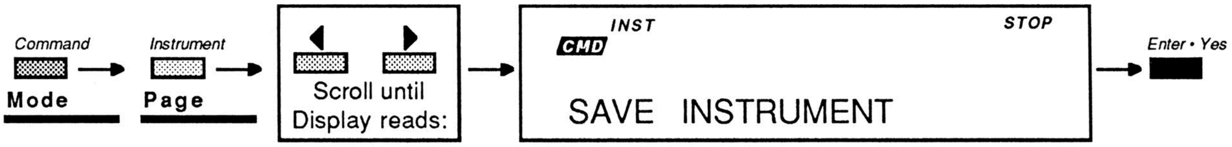
TO DELETE AN INSTRUMENT FROM INTERNAL MEMORY:

Make sure the instrument you want to save is selected. Then press:


Command
Mode
Instrument
Page
Scroll until Display reads:
INST
STOP
CMD
DELETE INSTRUMENT
Enter • Yes

TO SAVE AN INSTRUMENT TO DISK:

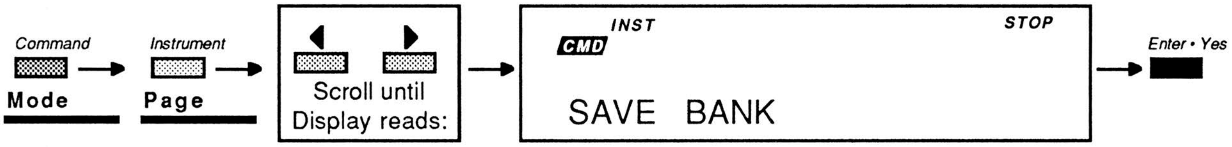
Make sure the Instrument you want to save is selected. Then press:


Command
Mode
Instrument
Page
Scroll until
Display reads:
INST
CMD
STOP
SAVE INSTRUMENT
Enter • Yes

Rename the Instrument if desired; then press *Enter*. If an Instrument with that same name is already on the disk, the Display will ask "DELETE OLD VERSION?" Press *Enter* to save the Instrument, or press *Cancel* to abort the Save procedure.

TO SAVE THE CONTENTS OF MEMORY AS A BANK:

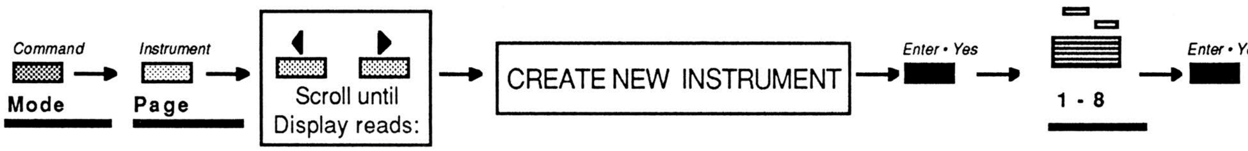
Make sure that all Instruments and the Song (if desired) are saved separately on the same disk. Press:


Command
Mode
Instrument
Page
Scroll until
Display reads:
INST
CMD
STOP
SAVE BANK
Enter • Yes

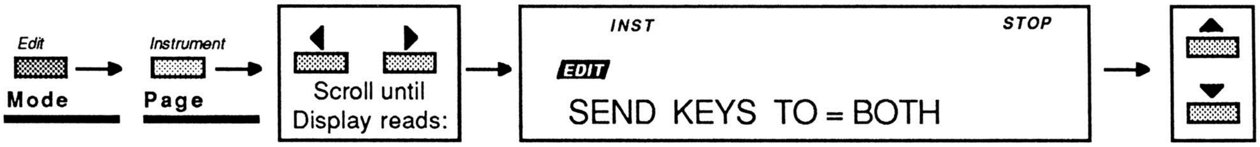
Rename the Bank if desired; then press *Enter*. If a Bank with that same name is already on the disk, the Display will ask "DELETE OLD VERSION?" Press *Enter* to save the Bank, or press *Cancel* to abort the Save procedure.

TO MAKE A MIDI INSTRUMENT

To play or sequence a remote MIDI device from the EPS, create a new Instrument, then assign it to "SEND KEYS TO= MIDI." First make the new Instrument:


Command
Mode
Instrument
Page
Scroll until
Display reads:
CREATE NEW INSTRUMENT
Enter • Yes
1 - 8
Enter • Yes

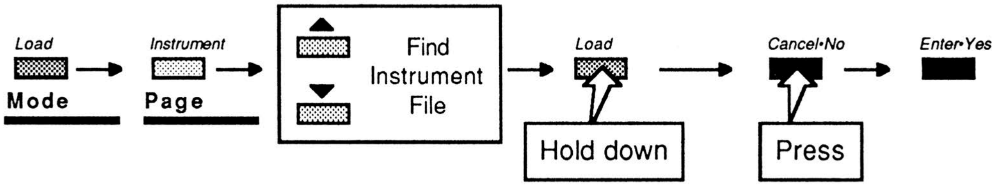
Then...


Edit
Mode
Instrument
Page
Scroll until
Display reads:
INST
EDIT
STOP
SEND KEYS TO = BOTH

Change to "SEND KEYS TO= MIDI." The Instrument will now play only over MIDI. Assign it a MIDI Channel and Program Number (also on this same Page). Then rename and save the MIDI Instrument for future use.

TO DELETE AN INSTRUMENT FILE FROM A DISK:

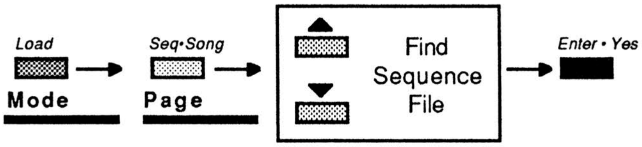
Press *Load* and locate the file just as if you were going to Load the file:


Load
Mode
Instrument
Page
Find
Instrument
File
Load
Hold down
Cancel•No
Press
Enter•Yes

While holding down the *Load* button, press *Cancel*. The Display asks "DELETE <FILE NAME>?" Press *Enter* to delete the disk file. Use the same basic procedure to delete any type of file from an EPS disk.

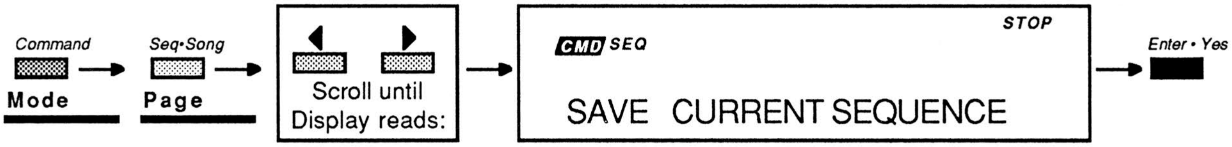
TO LOAD A SINGLE SEQUENCE OR A SONG:

Insert the disk containing the Sequence file into the drive. Then press:


Load
Mode
Seq•Song
Page
Find
Sequence
File
Enter • Yes

TO SAVE A SINGLE SEQUENCE TO DISK:

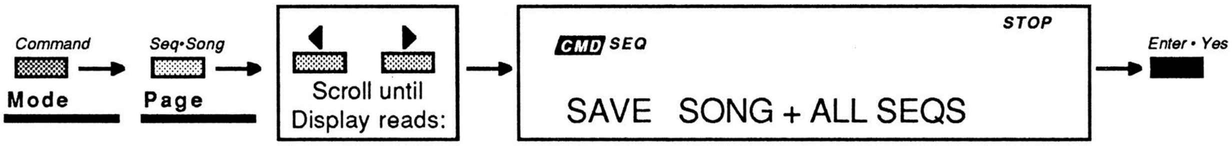
On the EDIT/Seq•Song Page, make sure the Sequence you want to save is selected. Then press:


Command
Mode
Seq•Song
Page
Scroll until
Display reads:
CMD SEQ
STOP
SAVE CURRENT SEQUENCE
Enter • Yes

Rename the Sequence if desired; then press *Enter*. If a Sequence with that same name is on the disk, the Display will ask "DELETE OLD VERSION?" Press *Enter* to save the Sequence, or press *Cancel* to abort the Save procedure.

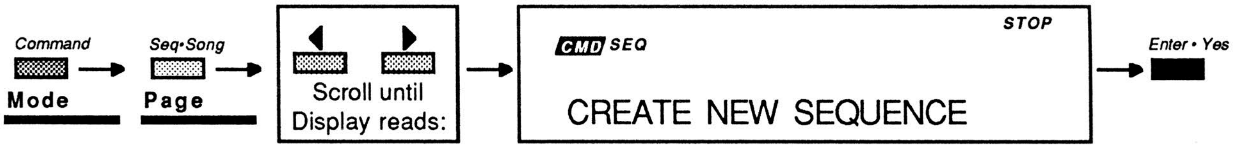
TO SAVE THE SONG AND ALL SEQUENCES TO DISK:

On the EDIT/Seq•Song Page, select the Song. Then press:


Command
Mode
Seq•Song
Page
Scroll until
Display reads:
CMD SEQ
STOP
SAVE SONG + ALL SEQS
Enter • Yes

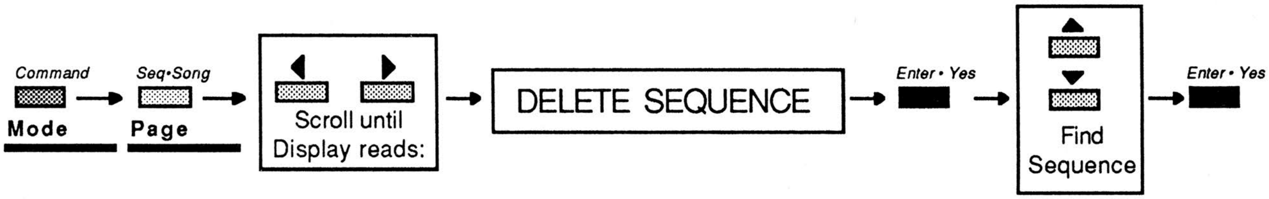
Rename the Song if desired; then press *Enter*. If a Song with that same name is on the disk, the Display will ask "DELETE OLD VERSION?" Press *Enter* to save the Song, or press *Cancel* to abort the Save procedure.

TO CREATE A NEW SEQUENCE:


Command
Mode
Seq•Song
Page
Scroll until
Display reads:
CMD SEQ
STOP
CREATE NEW SEQUENCE
Enter • Yes

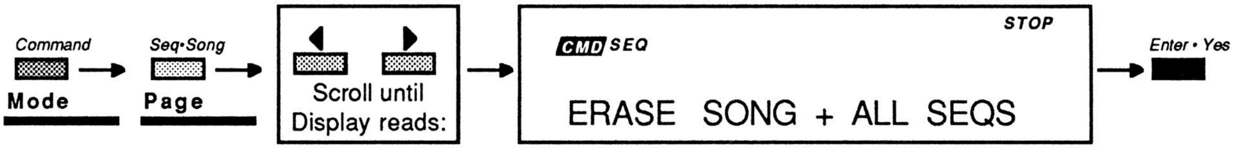
Name the new Sequence (or you can use the default name); then press *Enter*.

TO DELETE A SEQUENCE FROM INTERNAL MEMORY:


Command
Mode
Seq•Song
Page
Scroll until
Display reads:
DELETE SEQUENCE
Enter • Yes
Find
Sequence
Enter • Yes

TO ERASE ALL SEQUENCER MEMORY:

When you want to erase the Song and all Sequences in memory and start from scratch:

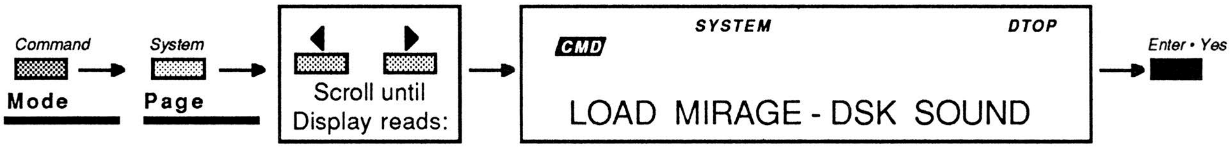

Command
Mode
Seq•Song
Page
Scroll until
Display reads:
CMD SEQ
STOP
ERASE SONG + ALL SEQS
Enter • Yes

The Display will ask "ERASE ALL SEQ DATA?" Press *Enter* to clear the Sequencer memory, or press *Cancel* to abort the procedure.

COMMAND/System Page — *System Commands*

TO LOAD A MIRAGE SOUND:

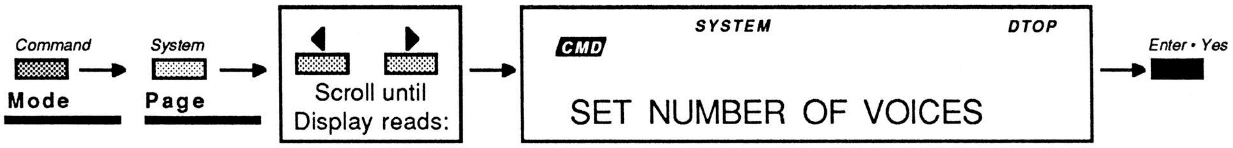
This procedure requires erasing all Sounds and Sequences in the Internal Memory, so save any important data first. Then press:


Command
Mode
System
Page
Scroll until
Display reads:
CMD
SYSTEM
DTOP
LOAD MIRAGE - DSK SOUND
Enter • Yes

The Display asks "MUST ERASE MEMORY, OK?" Press *Enter*. Use the Data Entry controls to select which sound from the Mirage disk you want to load — 1, 2 or 3. Scroll right and choose UPPER, LOWER or UPPER+LOWER. Press *Enter*. Insert the Mirage disk containing the sound you want to load. Press *Enter*. After it is loaded and converted, the sound should be renamed and saved to disk as an EPS Instrument.

TO CHANGE THE NUMBER OF AVAILABLE VOICES:

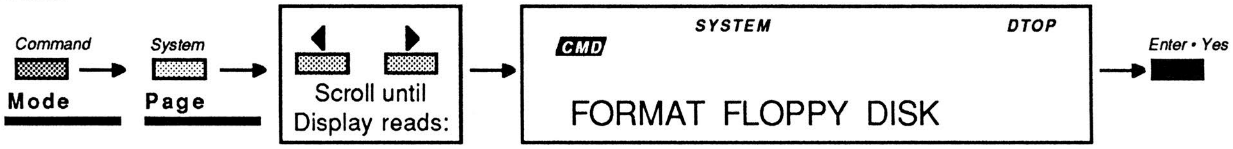
The EPS can play back with 12, 16 or 20 voices. Decreasing the number of voices increases the playback rate, thereby improving bandwidth and fidelity. Press:


Command
Mode
System
Page
Scroll until
Display reads:
CMD
SYSTEM
DTOP
SET NUMBER OF VOICES
Enter • Yes

Use the Data Entry Slider or the Up and Down Arrow Buttons to select 12, 16 or 20 Voices. Then press *Enter* again to set the number of voices.

TO FORMAT A FLOPPY DISK:

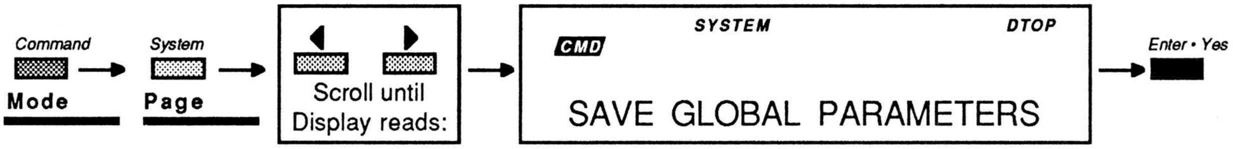
Press:


Command
Mode
System
Page
Scroll until
Display reads:
CMD
SYSTEM
DTOP
FORMAT FLOPPY DISK
Enter • Yes

The Display asks "ERASE AND FORMAT DISK?" Insert the disk to be formatted into the Drive AND PRESS *Enter*. Formatting takes about 80 seconds. You might want to copy the EPS Operating System to the disk after formatting it. See p. 22 for details.

TO SAVE ALL GLOBAL PARAMETER SETTINGS TO A STARTUP DISK:

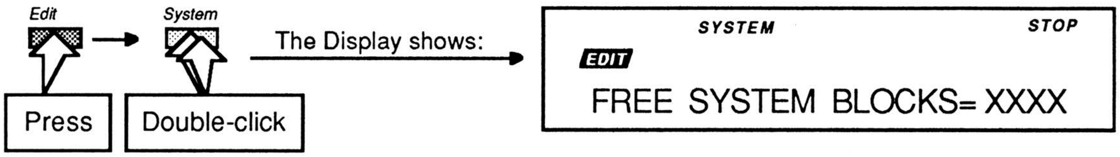
If you have changed any of the default settings of "Global" parameters (notably the *System, MIDI Sequencer* and *Sampling* parameters) and want to save the changes to the O.S. on the disk, press:


Command
Mode
System
Page
Scroll until
Display reads:
CMD
SYSTEM
DTOP
SAVE GLOBAL PARAMETERS
Enter • Yes

The next time you "boot" the EPS with that disk, the new settings will be loaded in as the defaults.

EDIT/System Page — *System Parameters*

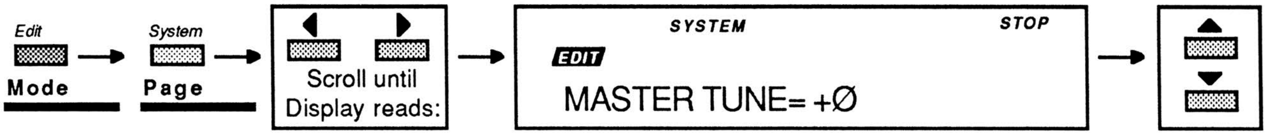
TO FIND OUT THE AMOUNT OF FREE MEMORY:


Edit
System
The Display shows:
Press
Double-click
SYSTEM
STOP
EDIT
FREE SYSTEM BLOCKS= XXXX

"FREE SYSTEM BLOCKS=__" tells you how many Blocks remain free in the EPS Internal memory (see p. 2 for an explanation of Blocks).

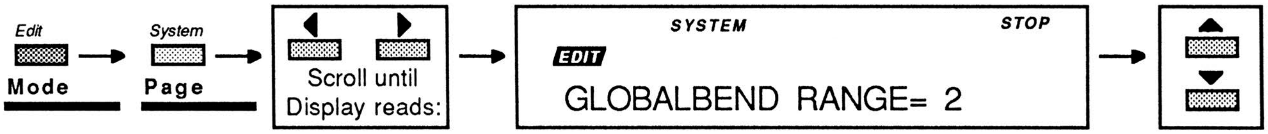
Press the Right Arrow button once and you will see "FREE DISK BLKS=XXXX." This tells you how many Blocks of free space remain on the disk currently in the drive.

TO ADJUST MASTER TUNING OF THE EPS:


Edit
System
Mode
Page
Scroll until
Display reads:
SYSTEM
STOP
EDIT
MASTER TUNE= +0

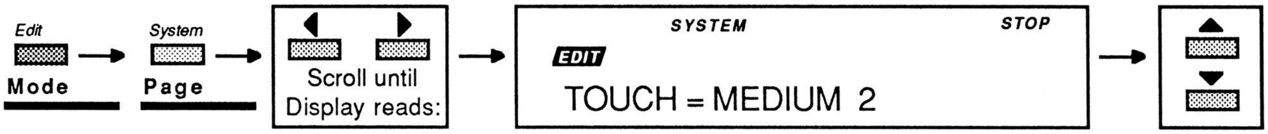
Master Tuning of the the keyboard can be adjusted up or down as much as one semitone (from -99 to +99) in increments of one cent. A value of MASTER TUNE = +0 yields A=440 tuning.

TO ADJUST THE PITCH BEND RANGE:


Edit
System
Mode
Page
Scroll until
Display reads:
SYSTEM
STOP
EDIT
GLOBALBEND RANGE= 2

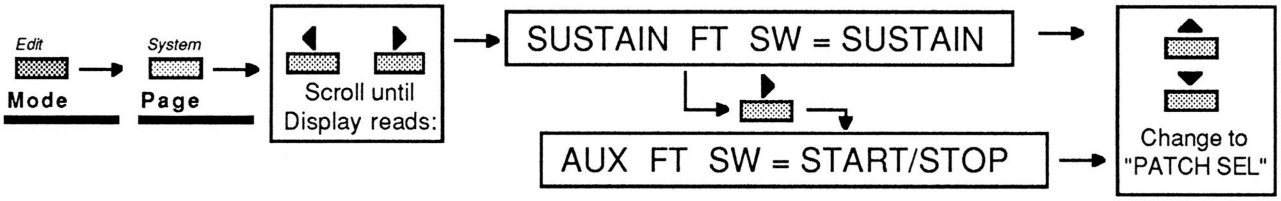
The Bend Range is adjustable in one-semitone increments from 0 to 12. Note that each Wavesample in each EPS Instrument can have its own Bend Range or can use this Global Bend Range.

TO ADJUST THE PRESSURE AND VELOCITY RESPONSE OF THE EPS:


Edit
System
Mode
Page
Scroll until
Display reads:
SYSTEM
STOP
EDIT
TOUCH = MEDIUM 2

There are 16 available settings, with four Velocity values ranging from SOFT to HARD, and four Pressure threshold settings ranging from 1 (least amount of pressure required to bring in modulation effect) to 4 (greatest amount of pressure required). Pick the combination which best suits your touch.

TO ASSIGN THE FOOT SWITCH(ES) AS PATCH SELECT BUTTONS:


Edit
System
Mode
Page
Scroll until
Display reads:
SUSTAIN FT SW = SUSTAIN
AUX FT SW = START/STOP
Change to
"PATCH SEL"

- Setting the Sustain FT. SW. function parameter to "SUSTAIN FT SW = PATCH SL" will make the Sustain Footswitch reproduce the actions of the right-hand Patch Select button. As long as it is set this way, it ceases to act as a Sustain pedal.
- Setting the Aux FT. SW. function paramater to "AUX FT SW = PATCH SEL" will make the Aux. Footswitch (available only when a model SW-5 dual footswitch is connected) reproduce the actions of the left-hand Patch Select button. While set this way, it will not start and stop the Sequencer.

MODEL: EPS **MIDI Implementation Chart** **Version: 2.2**

Function...		Transmitted	Recognized	Remarks
Basic Channel	**Default** **Channel**	1 1- 16	1 1- 16	
Mode	**Default** **Messages** **Altered**	1 X X	1, 3, 4, Multi X X	memorized (Global Controllers In MONO Mode)
Note Number	**True Voice**	21 - 108	21 - 108	
Velocity	**Note ON** **Note OFF**	O X*	O X	
After Touch	**Key's** **Ch's**	O O	O O	
Pitch Bender		O	O	
Control Change		1 - 95 1 Mod Wheel 4 Foot 6 Data 7 Volume 70 Momentary Patch Select 100 Registered Param Select 101 Registered Param Select	1 - 95 1 Mod Wheel 4 Foot 6 Data 7 Volume 70 Momentary Patch Select 100 Registered Param Select 101 Registered Param Select	programmable
Prog Change	**True #**	0 - 127	0 - 39	
System Exclusive		O	O	
System Common	**: Song Pos** **: Song Sel** **: Tune**	O O X	O O X	
System Real Time	**: Clock** **: Commands**	O Clock O Start, Stop, Cont	O Clock O Start, Stop, Cont	
Aux Messages	**: Local On/Off** **: All Notes Off** **: Active Sense** **: Reset**	X X X X	X X X X	
Notes	* A Note Off velocity of 64 is always sent for all keys.			

Mode 1: OMNI ON, POLY
Mode 3: OMNI OFF, POLY

Mode 2: OMNI ON, MONO
Mode 4: OMNI OFF MONO

O : **YES**
X : **NO**

EPS SPECIFICATIONS

KEYBOARD

- 61 note (C-C) weighted-action keyboard with velocity sensitivity and Poly-Key™ pressure (polyphonic aftertouch)
- Performance Loading - play and load at the same time - all keyboard functions remain active during disk load
- Up to eight "Instruments" instantly available
- Stack any two or more Instruments together by double-clicking Instrument buttons
- Easily change the keyboard range of any instrument or wavesample

CONTROLLERS

- Exclusive Patch Select Buttons for instant access to four different sounds within each instrument
- Pitch and Mod Wheels
- Sustain and Sequencer Foot Switches
- Mod/Volume Pedal

INTERNAL MEMORY

- 480k Bytes (256 KWords) Internal RAM
- 2 Memory expansions available:
  - 896k Bytes (512 KWords) w/ 2x+SCSI expander
  - 2.1 Megabytes plus SCSI port w/ 4x+SCSI expander

SAMPLING

- 16 bit fidelity
- 40 selectable Input Sample rates from 6.25 kHz to 52.1 kHz
- Maximum Sample times:
  - Internal Memory:
    - 41.7 sec. @ 6.25 kHz, 8.6 sec. @ 30 kHz, 5.7 sec. @ 44.6 kHz, 4.95 sec. @ 52.1 kHz
  - With 2x Memory Expander:
    - 83.4 sec. @ 6.25 kHz, 17.2 sec. @ 30 kHz, 11.5 sec. @ 44.6 kHz, 9.9 sec. @ 52.1 kHz
  - With 4x Memory Expander:
    - 167 sec. @ 6.25 kHz, 34.4 sec. @ 30 kHz, 22.9 sec. @ 44.6 kHz, 19.8 sec. @ 52.1 kHz
- No minimum or maximum size for Instruments (within the limits of memory)
- Easy sampling and multisampling with Expert System Autolooping
- Wide variety of Digital Signal Processing commands: wavesample copy, truncate, mix, merge, splice, volume smoothing, fade in, fade out, plus five different kinds of cross fade loops

PLAYBACK

- Frequency response: 20Hz to 20kHz +0, -3 dB
- 2x oversampling with 1st order linear interpolation for enhanced frequency response
- 24 bit internal processing
- Floating point output conversion for 96dB dynamic range
- Three playback modes:
  - 20 voices at 31.2 kHz playback rate for 15 kHz freq. response
  - 16 voices at 39 kHz playback rate for 19 kHz freq. response
  - 12 voices at 52 kHz playback rate for 20 kHz freq. response
- Linear phase output response for crystal clear high end
- Can convert Mirage sounds to EPS format and play them with improved fidelity

INPUTS/OUTPUTS

- Left/Phone and Right/Mono audio outputs allow programmable stereo mix
- Optional OEX-8 Output Expander provides additional 8 solo outputs
- Pedal/Control Voltage Input
- Audio Input switchable between mic and line level
- Sustain Pedal, Sequencer Footswitch
- MIDI In, Out, Thru
- Optional SCSI Port with 2x+SCSI or 4x+SCSI expander

VOICE ARCHITECTURE

- 20 voices dynamically assigned
- 2 Independent dynamic digital filters per wavesample
- Multi-mode digital filters — low pass or variable-width band-pass
- Multi-timbral, able to play eight Instruments at once from Sequencer or MIDI
- Instant selection of alternate samples with Patch Select buttons or legato playing
- Each Instrument can contain up to 127 wavesamples
- Complete program parameter set for each wavesample - pitch, filter and amplitude envelopes, LFO, 12 routable modulation sources
- Wavesamples are organized into Layers, which map groups of wavesamples across the keyboard. Each Instrument can contain up to eight Layers, which can be crossfaded at any number of points by the keyboard, by pressure, velocity, or any other modulator.
- Each wavesample can be individually panned within the stereo mix or sent to one of the eight solo outputs (with optional expander)
- Fully programmable pitch tables—up to 8 per Instrument

SEQUENCER

- 8 polyphonic tracks, each with separate Instrument, Volume and MIDI channel
- "Song Tracks" feature permits recording of 8 additional song length tracks once sequences are assembled into a song for virtual 16-track recording.
- Tracks can play internal voices and/or external MIDI instruments
- Sequence size limited only by internal memory (80,000 notes without expander)
- Up to 20 voices per track, dynamically assigned
- Post-quantization (auto-correct to 1/64 note triplets)
- Step editing, transposition, time shifting, overdub, append, change length, track merge and erase controllers, key pressure, key range and program changes
- Auto-locate controls and adjustable click track
- MIDI Auto Mix automated mixdown facility for individual tracks on the entire Song
- Songs and Sequences can be saved to disk

MIDI

- Poly, Omni, Multi and Mono A and Mono B modes
- 8 simultaneous polyphonic MIDI Channels in, with separate Instruments
- Instruments can be programmed to play only to MIDI Out, on any channel, allowing up to eight outbound MIDI keyboard zones
- Global controllers in mono mode for use with MIDI guitar controllers, etc.
- MIDI song position pointers for use with SMPTE auto-locators
- MIDI remote programming

DISK

- 800K double-sided 3.5" micro-floppy
- DMA (Direct Memory Access) for Play While Load
- Variable-size file storage
- Subdirectory organization
- Save MIDI System Exclusive dumps from any MIDI device to disk

STANDARD ACCESSORIES

- Musician's Manual, Advanced Applications Guide, detachable power cord, sustain footswitch, Essential Sound Library of 10 disks including the most up-to-date operating system

OPTIONAL ACCESSORIES

- Additional Sound Disks
- CV Pedal - for voice modulation or volume control
- 2-pedal piano-type Footswitch for Patch Select, Sustain and Sequencer control
- 8-Output Expander box
- 2x+SCSI and 4x+SCSI memory expanders

DIMENSIONS

- 40 1/2" (102.9cm) wide X 4" (10.2cm) high X 13 1/2" (34.3cm) deep
- Weight: 29.2 pounds (13.2 kilograms)

"INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS"

IMPORTANT SAFETY INSTRUCTIONS

WARNING—When using electric products, basic precautions should always be followed, including the following:

1. Read all the instructions before using the product.

2. To reduce the risk of injury, close supervision is necessary when a product is used near children.

3. Do not use this product near water - for example, near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.

4. This product should be used only with a cart or stand that is recommended by the manufacturer.

5. This product, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.

6. The product should be located so that its location or position does not interfere with its proper ventilation.

7. The product should be located away from heat sources such as radiators, heat registers, or other products that produce heat.

8. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.

9. This product may be equipped with a polarized line plug (one blade wider than the other). This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician to replace your obsolete outlet. Do not defeat the safety purpose of the plug.

10. The power supply cord of the product should be unplugged from the outlet when left unused for a long period of time.

11. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

12. The product should be serviced by qualified service personnel when:

    a. The power supply cord or the plug has been damaged; or
    b. Objects have fallen, or liquid has been spilled into the product; or
    c. The product has been exposed to rain; or
    d. The product does not appear to operate normally or exhibits a marked change in performance; or
    e. The product has been dropped, or the enclosure damaged.

13. Do not attempt to service the product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.

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